Public–Private Partnership Infrastructure Projects: Case Studies from the Republic of Korea

Volume 1: Institutional Arrangements and Performance

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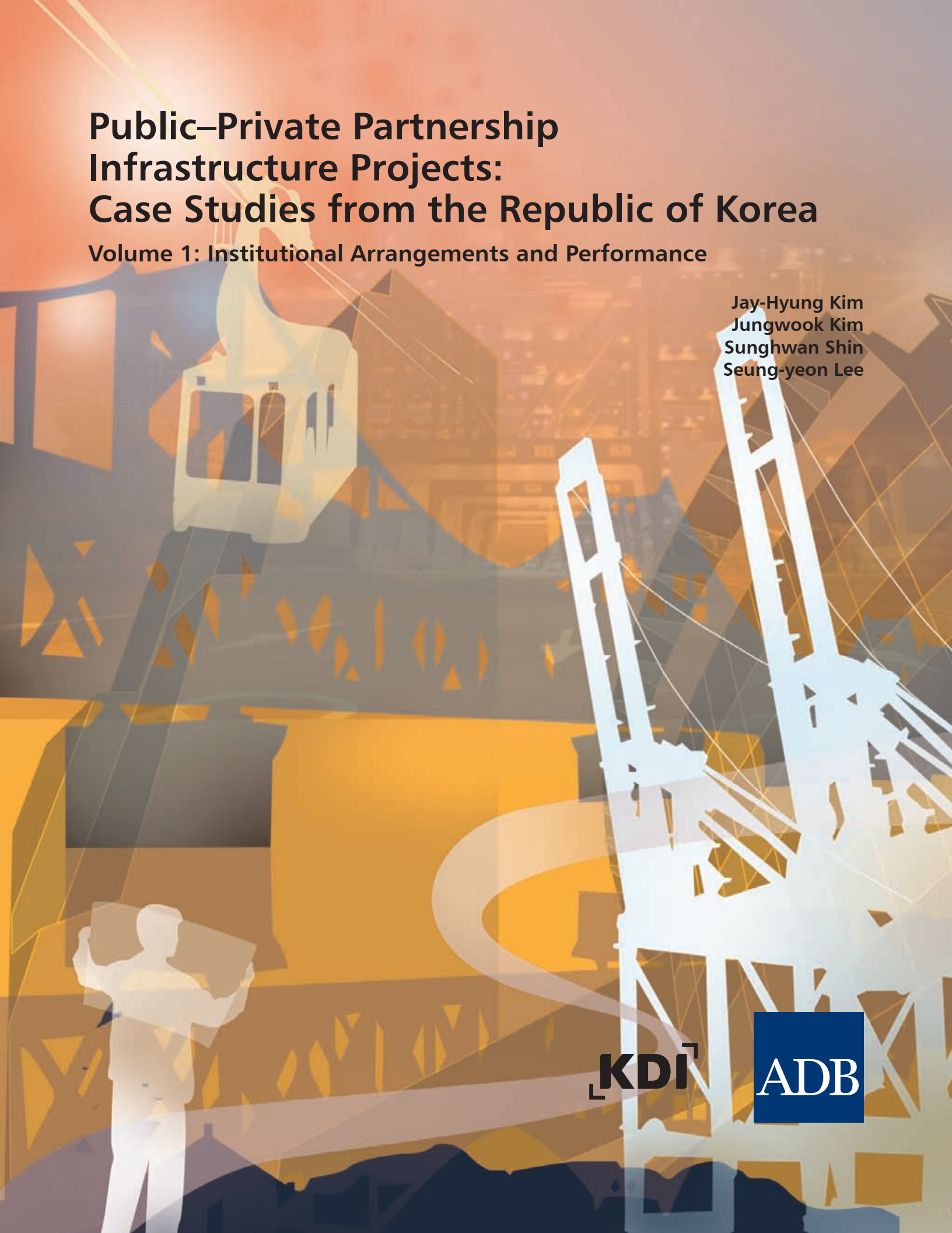

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Abbreviations

ADB	–	Asian Development Bank
BCFR	–	base case fair return
BOO	–	build–own–operate
BOOT	–	build–own–operate–transfer
BOT	–	build–operate–transfer
BTL	–	build–transfer–lease
BTO	–	build–transfer–operate
DEDPI	–	Detailed Engineering and Design Plan for Implementation
EU	–	European Union
GDP	–	gross domestic product
ICGF	–	Infrastructure Credit Guarantee Fund
IMF	–	International Monetary Fund
IRR	–	internal rate of return
KDI	–	Korea Development Institute
MOSF	–	Ministry of Strategy and Finance
MRG	–	minimum revenue guarantee
OECD	–	Organisation for Economic Co–operation and Development
PFI	–	private finance initiative
PIMAC	–	Public and Private Infrastructure Investment Management Center
PPP	–	public–private partnership
PRC	–	PPP Review Committee
PSC	–	public sector comparator
RFP	–	request for proposal
ROI	–	return on investment
SOC	–	social overhead capital
SPC	–	special purpose company
TEU	–	twenty–foot equivalent unit
VFM	–	value for money

Note: Exchange rate: $1 = W1,184 (on 30 October 2009)

Foreword

In Asia and the Pacific, infrastructure investment requirements exceed the available public financial resources; the private sector will need to play a larger role in financing infrastructure in partnership with the public sector through public–private partnerships (PPPs). Indeed, there is an increasing recognition and emphasis among developing member countries (DMCs) of the need to adopt PPP approaches for the development of infrastructure. Experience has shown that the PPP approaches in infrastructure and social service delivery enable governments to use private sector efficiency and investments to improve services to the citizens. At the same time, many DMCs experience difficulties in implementing PPP projects. The Asian Development Bank (ADB) works with governments to disseminate knowledge, develop capacity, assist in formulating reform agendas, strengthen governance, and create conditions conducive to implementing PPP projects.

The Republic of Korea has rich experience in implementing PPP projects for almost a decade. This experience provides valuable lessons for most DMCs and that merits wider dissemination. The two-volume report prepared by the Korea Development Institute (KDI) presents an in-depth assessment of the different components of PPP framework of the Republic of Korea, including comparing and contrasting the success factors of the Korean PPP model with the experience of other countries through invited presentations on PPP frameworks and multisector case studies.

This publication aims to support the efforts of DMCs engaged in the development of appropriate institutional PPP framework and regulatory reforms along with a well-defined and transparent financial assistance and risk-sharing framework, for facilitating private sector involvement through PPPs. With this report, we hope governments, the private sector, and civil society will benefit from sharing the experiences of other countries to understand choices in PPP approaches and eventually contribute to infrastructure and economic development in Asia and the Pacific.

This knowledge-sharing work was conducted under the regional technical assistance project, Knowledge Sharing on Infrastructure Public–Private Partnerships in Asia (Project Number: 42105-01, financed by the Republic of Korea e-Asia and Knowledge Partnership Fund). Anand Chiplunkar of the Sustainable Infrastructure Division of the Regional and Sustainable Development Department (RSDD) is the task manager of the project. KDI is the implementing agency. We would like to thank the team of experts at KDI, led by Jay-Hyung Kim, for the completion of this report. The successful conduct of the PPP workshop in Seoul, Korea in May 2009 also greatly contributed to compiling other country frameworks and case studies in this report. To this end, we thank all the contributors, panelists, and participants to the workshop.

Xianbin Yao
Director General
Regional Sustainable Development Department
Asian Development Bank

Preface

With a 15-year experience in public–private partnership (PPP) program, the Republic of Korea is deemed to have established institutional settings and a matured market. The government initiates various kinds of policies that can facilitate infrastructure financing through PPP approaches. Comprehensive and clear definition of the PPP procurement steps—to secure or enhance value for money—in the special law and regulations has been an essential element to improve consistency and efficiency and to reduce uncertainty in implementing PPP projects in the country.

The Ministry of Strategy and Finance (MOSF) of the Government of the Republic of Korea is responsible for managing PPP projects, and the Public and Private Infrastructure Investment Management Center (PIMAC) at the Korea Development Institute (KDI) supports MOSF in various ways. The mission and roles of PIMAC, prescribed in the PPP Law, include (i) supporting MOSF in formulating the Basic Plan for PPP; (ii) supporting the competent authorities and ministries in the procurement process, such as assessment of feasibility and value for money for potential PPP projects, formulation of the request for proposal, designation of the concessionaire, and promoting foreign investment in PPP projects through consultation services and other related activities; and (iii) developing and operating capacity-building programs for public sector practitioners. Along with the technical assistance described above, PIMAC at KDI conducts policy research related to PPP programs and provides policy advice to MOSF and procuring ministries.

Under the Technical Assistance Collaboration Agreement with the Asian Development Bank (ADB), recognizing the need to facilitate PPP in developing member countries, the KDI produced this publication based on Korean experience of PPP over the last decade. With reflection of the Korean PPP procurement scheme, the current publication tries to present not only case studies on institutional arrangements for PPP in the Republic of Korea but also the policies and evidences of maximizing benefits and value for money of PPP while minimizing downsides and risks.

This publication was prepared by PIMAC of KDI. I am deeply grateful to the Government of the Republic of Korea, and would like to give special thanks to MOSF for providing valuable support and encouragement. I also would like to thank other ministries and agencies of the government as well for the providing supporting materials and data provided for PPP analyses.

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Executive Summary

Background

Following decades of rapid economic growth, the Republic of Korea found itself at the beginning of the 1990s with a serious shortage of infrastructure facilities, such as roads, railways, seaports, and airports. The government, judging there would be limits to its ability to fund the needed construction of infrastructure facilities, had come to feel the need to induce private sector participation in infrastructure investment as an alternative means of replenishing infrastructure. The government began to push for public–private partnership (PPP) projects in earnest with the August 1994 enactment of the Act on Promotion of Private Capital Investment in Social Overhead Capital.

Because of the financial crisis that hit the Republic of Korea in late 1997, however, the promotion of PPP projects fell into a slump. So, the government made an across-the-board amendment, called the Act on Private Participation in Infrastructure, in December 1998, which called for, among other things, reinvigorating PPPs through various government policy supports, including the minimum revenue guarantee (MRG). The government modified this law again in January 2005, expanding the range of facilities covered from economic infrastructure—such as transport facilities like roads, railways, seaports, and environmental facilities—to social infrastructure, such as schools, military residences, housing and welfare facilities for the aged, and cultural facilities. It introduced the build–transfer–lease (BTL) method in addition to the existing build–transfer–operate (BTO) method, expanding the scope of participation in PPP financing and diversifying opportunities. In October 2009, the MRG was abolished and replaced by the government support measure of compensation of base cost where the government shares investment risk within the limit of government's cost in case the project was conducted as a public project.

Chronologically, the changes in the nation's PPP project characteristics can be roughly divided into four periods. Phase I covers the period from the 1960s to August 1994, during which the nation sporadically conducted PPP projects based on individual laws that applied to road and port projects.

Phase II covers the period from the enactment of the Act on Promotion of Private Capital Investment in Social Overhead Capital in August 1994 to March 1999, just before its comprehensive revision in the Act on Private Participation in Infrastructure. During this period, the government set clear criteria on concession periods, user fees, and government support, as well as more clearly specified project implementation processes. Despite these changes designed to encourage private investment, private investment sharply declined due to the financial crisis that hit the nation in late 1997. The amount of actual PPP activity during this period remained quite sluggish. From the viewpoint of policy makers, the immediate aftermath of the financial crisis was a period when they badly needed expanded private investment in social infrastructure

to stimulate the economy and foreign direct investment to upgrade the Republic of Korea's sovereign credit rating to overcome the financial crisis. During this period, there was an even greater need to reinvigorate PPP projects. The government therefore took steps to make a wide range of systemic improvements, including enactment of the Act on Private Participation in Infrastructure in December 1998.

Phase III spans the period from early 1999 to 2004, during which time the government introduced various support systems to reinvigorate private investment projects, including the MRG. The government attempted to solve various problems that had been continuously raised in the course of promoting PPPs. Such measures included removing artificial divisions of facilities eligible for PPP support, diversifying project promotion patterns into solicited and unsolicited projects, requiring feasibility and appropriateness studies for the selection of projects, establishing the Public and Private Infrastructure Investment Management Center (formerly known as the Private Infrastructure Investment Center of Korea), improving the Korea Infrastructure Credit Guarantee Fund system, establishing and operating an infrastructure fund, and granting private-sector buyout rights.

Finally, Phase IV covers the period from the introduction of the BTL method in January 2005, during which the government revised the Act on Private Participation in Infrastructure, expanding the categories of PPP projects from economic production facilities to social and residential facilities. Also, it diversified the PPP implementation methods, such as implementing the BTL method on solicited projects.

The PPP market in the Republic of Korea has grown and developed into a stable and highly profitable financial market thanks to the government's systemic support and management to vitalize the PPP program over the past decade or so. The PPP market has solidified its position as a new mode of raising funds to make up for insufficient government funding. Private sector interest is increasing, and the government through various policies is working to reinvigorate PPP financing, as part of its effort to upgrade its PPP promotion strategy. As of the end of 2008, more than 400 projects were under way. Out of those, about 110 BTO projects and 140 BTL projects have been completed and are in operation.

Recently, there has been growing demand in the Republic of Korea to set up a sound fiscal management system for PPP projects. PPP investment has long been treated separately from publicly financed investment and was not included in the accounting and regulation of government expenditures. In terms of settling government subsidy between the competent authorities and the private concessionaire, contracting future payment obligations for 20–30 years and forecasting future expected or contingent government revenues, there is a need to develop a fiscal guideline to define proper level of private sector participation, and the investment portion against the budget and suggested criteria for project selection. The government is considering linking the PPP implementation and investment plans to the government budget within the medium-term expenditure framework.

This study is divided into two volumes of case studies from the Republic of Korea's experience with PPP infrastructure projects, along with appendixes. The first volume examines the institutional framework of the Korean PPP system, its performance, and recent strategies and initiatives for effective PPP implementation and management. The government's latest policy measures intended to reinvigorate PPP investment in

the aftermath of the recent global financial crisis are included as well. The second volume summarizes cases involving BTO port and BTL educational facility projects. In the appendixes, a global country comparison is provided, including country PPP frameworks and case studies.

Volume 1: Institutional Arrangements and Performance

Institutional Settings

The first volume of this report describes the details of institutional settings for PPPs in the Republic of Korea. The volume examines the legal framework for PPPs, decision organizations, procurement schemes, government support for land expropriation, financial and tax incentives, concession termination conditions, and training and educational programs for capacity building.

The PPP Act and the Enforcement Decree, the principal components of the legal framework for PPPs, clearly define eligible infrastructure types, procurement types, procurement processes, the roles of the public and private parties, policy supports, etc. The act is a special act that supersedes other acts. The act exempts PPP projects from strict government regulation in the area of national property management and allows a special purpose company (SPC) to play the role of competent authority.

The hierarchy of the legal arrangements for PPPs is

- PPP Act,
- PPP Enforcement Decree,
- PPP Basic Plan, and
- PPP Implementation Guidelines.

The PPP Act lays out the PPP Basic Plan and PPP Implementation Guidelines, which together address, in detail, policy directions, procurement steps, and government supports.

The PPP Act directs the Ministry of Strategy and Finance (MOSF) and the Public and Private Infrastructure Investment Management Center (PIMAC) to issue the PPP Basic Plan. The Basic Plan provides PPP policy directions, PPP project implementation procedures, financing and refinancing options, risk allocation mechanisms, payment schemes for government subsidies, and documentation instructions. PIMAC developed the PPP Implementation Guidelines to improve transparency and objectivity in PPP implementation. Continuous development of the act and related regulations demonstrates a strong commitment on the part of the government to strengthen the private sector's confidence in the PPP program.

Major players in the PPP program include the MOSF and the concerned line ministries. The MOSF is responsible for implementing the PPP Act, PPP Enforcement Decree, and PPP Basic Plan. The MOSF is responsible for preparing the draft budget for PPPs as well. An important issue concerning the interplay among MOSF and the line ministries is that of fiscal discipline. Given that PPPs involve both the government and the private sector and that the line ministries are the initial contact points and do not frequently keep the MOSF informed, the MOSF often has trouble in managing PPP

projects. Therefore, the MOSF exercises tight control on public expenditures in the implementation stage. Ministries are required to spend within the limits set in the quarterly budget implementation plan. When deemed necessary, the MOSF is able to postpone or block part of PPP program expenditures.

Under the PPP Act, the PPP Review Committee (PRC) is organized and managed by the MOSF. The PRC considers matters concerning the establishment of major PPP policies and key decisions in the process of implementing large-scale PPP projects. The committee is composed of the minister of finance and strategy (chair), vice ministers of line ministries in charge of implementing PPP projects, and private sector experts with knowledge and experience in PPP projects.

The mission and roles of PIMAC are prescribed in the PPP Enforcement Decree. They include supporting the MOSF in the formulation of the PPP Basic Plan; supporting the competent authorities and ministries in the procurement process, such as assessment of feasibility and value for money for potential PPP projects, formulation of the request for proposal, designation of the concessionaire, evaluation of project proposals by private companies, negotiation with potential concessionaire, etc.; promoting foreign investment in PPP projects through consultation services and other related activities; and developing and operating capacity-building programs for public sector practitioners. Besides the technical assistance described above, PIMAC conducts policy research related to PPP programs and provides policy advice to the MOSF and procuring ministries.

Under the PPP Act, 46 infrastructure facility types in 15 sectors are eligible for PPP procurement. By listing eligible facility types in the PPP Act, the government aims to induce private capital to invest in the sectors where additional investment is needed for the benefit of the public. Some argue, however, that the listing of eligible facility types may restrict the flexible and innovative application of PPP procurement to new types of facilities. These critics recommend modification of the act for more comprehensive application.

Eligible procurement methods are divided into build–transfer–operate (BTO) and build–transfer–lease (BTL), depending on the structure of the PPP project. Other procurement methods, such as build–operate–transfer (BOT) and build–own–operate (BOO), are applicable as well. PPP projects are categorized into solicited and unsolicited, depending on who initiates the project. For a solicited project, the competent authority, central or local government, identifies a potential PPP project and solicits proposals from the private sector. In the case of an unsolicited project, the private sector identifies a potential PPP project and requests designation of the project as a PPP from the competent authority. The concessionaire is selected under a competitive bidding process, although the initial proponent may obtain extra points in the bid evaluation.

In order to facilitate PPP implementation, the PPP Act grants land expropriation rights to the concessionaire. The concessionaire may entrust the competent authority or the local government with the following responsibilities, execution of the land purchase, compensation for loss, resettlement of residents and others. The overall process of land acquisition or expropriation for public works, such as infrastructure facilities and public buildings, is prescribed by the Land Acquisition Act. Unless a special provision is provided in the PPP Act or related laws, the procedures under the

Land Acquisition Act apply to the expropriation or use of land needed for the implementation of PPP projects. Under the Land Acquisition Act, land acquisition is carried out by the concessionaire.

The government promulgates various kinds of policies that can facilitate infrastructure financing. More specifically, the government provides (i) construction subsidies, (ii) compensation for base (raw) cost, (iii) infrastructure credit guarantees via the Infrastructure Credit Guarantee Fund, (iv) tax incentives, and (v) guidelines for early termination payment.

Trends and Current Status

In 1995 when PPP projects were first introduced, W400 million was invested in PPP projects (mostly in BTO projects), which was just 0.5% of total social overhead capital investment. However, by late 2008, W3.7 trillion was invested in PPPs, taking up about 17.3% of total social overhead capital investment.

As of September 2009, a total of W66.1 trillion had been invested in 203 BTO projects. These projects were in various stages of development: 110 completed, 44 under construction, 19 in preparation for construction, 24 under negotiations, and 6 preparing to announce request for proposal (RFP). Of these projects, concessionaires were chosen and concession agreements signed for 173 projects. By sectors, there were 61 road projects, 11 railway projects, 17 port projects, 64 environmental facilities, 5 logistics projects, and 45 other types of construction projects, including parking lots and culture and tourism projects. Of the 203 projects, 86 were national projects and 117 were local projects.

Among the signed BTO projects, the annual rate of return in real terms was 9.12% in 2000; this gradually declined to 8.13% in 2004, 6.66% in 2006, falling sharply to 5.13% in 2008.

To promote BTO projects, the government provides subsidies during the construction phase and subsidizes operations through MRGs. Unlike other government support, such as fixed construction subsidies, government guarantees create higher fiscal risks because it is harder to estimate the costs and benefits. Through MRGs, the government guarantees private investors a fraction of expected revenue for a project. If revenue falls below the guaranteed level, the government pays the investor the difference. As of the end of 2008, about W1,390.3 billion in MRG subsidies had been paid to private project companies. Early projects started operation but generated only 50% of expected demand on average. Large amounts of government payments were provided as MRG subsidies annually.

One criticism of the MRG system was that the government took most of the risk, but provided unreasonably high returns to private participants. Higher MRG levels implied more risk transfer from private participants to the government. Another criticism of the MRG system was that the project company may display moral hazard behavior by not trying its best to increase revenue. The worst case of the moral hazard problem arose in projects where the main user of the facility was the project company, such as with port projects. Various efforts were initiated by the government to mitigate the burden from its MRG commitments. One of the most direct efforts was consultation with the project company to develop plans for increasing

revenue. Other efforts included preparing refinancing guidelines. When the project company refinanced, the company and the government would split the refinancing gains.

In an October 2009 revision of the PPP Basic Plan, the government abolished the MRG scheme. In order to improve PPP project structure, a new risk-sharing structure was developed, under which the government shares investment risk with the private company by compensating the base (raw) cost of the project, calculated as the sum of private investment cost and the interest rate of government bonds. Projects covered by the new structure are government-solicited projects with significant public benefits.

As of September 2009, a total of 242 BTL projects were under way, involving a total investment of W12.2 trillion. These include: 8 signed projects, 92 under construction, and 142 in operation. Among the BTL projects, 136 are projects for primary and middle schools, 56 are for environmental sewage facilities, 10 are for military residential facilities, and 18 are for cultural facilities.

The infrastructure fund is a vehicle that indirectly invests money in PPP projects. This vehicle is established and operated according to the PPP Act. The infrastructure fund is a mutual fund that invests in infrastructure PPP projects. Because it is a special purpose mutual fund, the infrastructure fund is subject to the Act on Business of Operating Indirect Investment Assets (unless the PPP Act directs otherwise). The PPP Act supports the infrastructure fund by exempting it from the Fair Trade Act. This allows the infrastructure fund to hold more than what the Fair Trade Committee allows (listed corporation: 30%; non-listed corporation: 50%). In 2005, the asset size of the infrastructure fund, assisted by recent economic growth in emerging Asian market, increased by 71% compared to the previous year, making its asset value $98.1 billion. This was the result of low interest rates and the pension funds' expanding investment in the infrastructure fund in order to secure more stable long-term returns. As more funds flowed into private equity funds, in June 2006, the inflow of funds increased by 50% compared to only 2% in early 2000, and the amount raised by issuing stocks was $29 billion, which was more than 7 times the amount raised the previous year.

Implementation Procedure

The PPP Act and the PPP Enforcement Decree regulate general procurement procedure for PPP projects. The PPP Basic Plan formulated under the PPP Act provides detailed implementation processes by project types and initiation and defines the roles of associated parties, such as competent authority, private company, the MOSF, line ministries, and PIMAC for each step in the process. A comprehensive and clear definition of the PPP procurement steps in the special law and regulations has been an essential element to improve consistency and efficiency and to reduce uncertainty in implementing PPP projects.

The procurement procedure is designed to secure or enhance value for money (VFM) of PPP projects. In the planning stage, an assessment of a potential project is carried out to ensure VFM of PPP procurement in comparison with traditional public procurement. In the bid selection stage, competitive bidding is mandatory, both for solicited and unsolicited projects; this leads to improving VFM of the project concerned by encouraging bidders to propose higher service quality and reduced project costs.

To secure accountability and conformity of PPP projects with the national infrastructure investment plans and policies, the PPP Act requires the MOSF and the PRC to deliberate on large PPP projects whenever they pass gateways to the next procurement step.

In addition, standard guidelines have been developed by PIMAC for documentation, such as performing a VFM study and formulating an RFP and a PPP contract, to facilitate the procurement process and enhance consistency.

Ex-Post Management, Refinancing, and Renegotiation

Up to now, the PPP program has been focused on the ex-ante stage of the projects, meaning project selection and project inducement. However, as more projects enter into the operational phase, issues about the efficiency of project management and contract renegotiation will be highlighted; these issues arise in the ex-post stage. Thus, it is important to understand the progress of PPP projects and their ex-post management system.

Currently, PPP projects in the Republic of Korea are managed by the appropriate competent authority (for example, the Ministry of Land, Transport and Maritime Affairs, the Ministry of Environment, the Seoul Metropolitan Government, the Busan Metropolitan City, etc.) and the management structure is stipulated in each concession agreement. Each competent authority manages projects by implementing guidelines for concession agreements and receiving project progress reports.

The competent authorities must check on all PPP projects on a quarterly basis and submit the results to the MOSF. In addition, they must input status data on a quarterly basis for each project into the InfraInfo System (http://InfraInfo.kdi.re.kr), a database of PPP projects. The MOSF and PIMAC administer the system. The database includes financial status, project progress, and fiscal support-related information.

To carry out fair performance evaluations, the competent authority must form a performance evaluation committee consisting of government officials, the project company (SPC or operator), and experts in the relevant field. The project company first submits a self-evaluation report, which is reviewed by the competent authority. The performance evaluation committee then can decide whether to conduct an additional independent evaluation by a third party. For each evaluation item (e.g., availability, safety and durability, service satisfaction, etc.) the PPP project is given an evaluation grade (e.g., grade A through D) and then scored according to the grade. Weights are given to evaluation items (using methods such as the analytic hierarchy process) to calculate final evaluation results.

A survey was conducted of major stakeholders of BTO road projects currently in operation—competent authorities, project companies, and experts—about user satisfaction, the performance of BTO projects, and other issues. To find out the level of user satisfaction, interviews were conducted with 200 users of three BTO toll roads. E-mail surveys were conducted with 200 people, such as public officials, project company employees, and experts related to the BTO projects.

The results of this survey show that different groups of stakeholders have different perceptions about the performance of BTO projects. In the survey of users, those

who use BTO roads were found to be largely satisfied with the services despite more expensive tolls than government-financed roads. Although the BTO toll roads provide the greatest advantage for shorter travel time compared with alternative roads, a reduction in the price of tolls appeared to be the most important task to increase user satisfaction. The survey of project companies, competent authorities, and experts demonstrated a perception gap between project companies and competent authorities on the performance of BTO projects. While project companies and experts had positive perceptions of BTO projects, competent authorities had somewhat negative responses. This can be attributed to the financial burdens caused by subsidies and MRGs, and additional administrative burdens from higher tolls, outside auditing, and civil complaints.

Results of the surveys of BTL projects' stakeholders showed that satisfaction levels were high among students, principals, and administrative chiefs for school construction and operation. Stakeholders also had positive appraisals regarding attainment of the BTL's purposes and VFM. It is noteworthy that the high appraisal of school operation indicates that this new business area of service purchase-type projects is successfully taking root.

Refinancing is the process of changing the project consortium's equity structure, investment share, debt financing condition, etc. Refinancing clauses were added to the 2004 PPP Basic Plan. Then, in 2007, PIMAC developed Guidelines for Refinancing to clarify some of the details of refinancing. According to the PPP Act, the competent authority is supposed to share the refinancing gains equally with the project company. The competent authority is directed to use its share of the refinancing gains to lower user fees. However, if the competent authority finds that lowering the user fees is inappropriate considering the characteristics of the individual project, then it can lower the MRG level, reduce the concession period, or other similar measure to use refinancing gains.

PIMAC plays a critical role in refinancing. The PPP Basic Plan states that the center should provide advice or act as an intermediary in case of dispute. According to the guidelines, PIMAC must review and validate the financial models, the refinancing gain estimation, and the alternatives for using the refinancing gains before negotiation. As of the end of 2008, six BTO projects had been completely refinanced, and five more projects were in the process of refinancing.

Renegotiation means an adjustment or change in the concession agreement. Terms and conditions of the concession agreement can be renegotiated when the PPP policy or the project scope changes. Renegotiation is also possible when the government wants to rebalance the use of facilities among government facilities and PPP facilities. The PPP Basic Plan and the concession agreement describe the detailed situations where renegotiation is permitted, and how renegotiation proceeds.

Evidence of Cost Savings and Efficiency Gain

This study analyzed the efficiency of PPP projects from the perspectives of three parties: users, concessionaires, and the government. The study examined the risks each party takes and whether the risk sharing schemes are appropriate. From the perspective of users, efficiency can be divided into an analysis of the level of user fees (toll fees and passage fares on PPP roads and railways) based on financial

models and renegotiation issues involving concession agreements. Users pay fees such as tolls for roads and passage fares for railways to use private facilities. By comparing and analyzing the level of user fees between government-financed and private-investment projects, the paper examined whether the difference in user fees between government and PPP projects has decreased over time in relation to experience with PPP projects. The results of comparison found that the difference in user fees between government and PPP projects has steadily decreased in proportion to accumulated experience in PPP projects.

For PPP projects to be carried out efficiently, one of the most important issues is promoting competition among private participants bidding for the project. The paper examined whether there was enough competition among private participants and analyzed government subsidies given the level of competition and return on risk for private participants. In the past, there was not enough competition for PPP projects among private participants. Some 70% of PPP projects were awarded to a sole bidder, with about 30% involving more than one bidder. The level of competition was examined based on the two types of projects—solicited and unsolicited. What is noteworthy is that there was no significant difference in the level of competition between solicited and unsolicited projects. With solicited projects, the problem of asymmetric information among private participants is less serious compared to unsolicited projects. Therefore, more competition among solicited projects would be expected. Real data, however, indicated that there was no significant difference in the level of competition between solicited and unsolicited projects and that many solicited projects were awarded to a sole bidder. The results suggested that bidding for solicited projects may have been carried out less efficiently. Project data by year, however, showed that the number of bidders has increased over time, indicating that PPP projects have become more efficient.

Results of estimated rates of return for private investment projects showed that the real rate of return stands at about 6%–9%, and nominal rate of return at about 11%–14%. The premium against 5-year government bond yield was around 6%–9%. The results of estimation of appropriate rates of return—based on different types of risk and agreement terms across road, railway, and seaport projects—showed that most projects were guaranteed very high rates of return. The appropriate level of premium varied depending on individual projects, but it was around 2%–4% against a 5-year government bond yield on average. The rate of return for private participants in PPP projects was much higher than their level of risk. The good news is that the premium rate of return against a 5-year government bond yield has decreased year by year, which indicates improved efficiency of PPP projects.

Most issues with PPP projects are related to the government, directly or indirectly. The most direct issue is the government subsidy, which is injected into both government-financed and PPP projects. This study examined two cases. According to results of analysis for Project A, if the level of revenue from toll fees falls to less than 66.25%, it would be more efficient to carry out a government-financed project. If the level is at least 66.25%, it would be more efficient to carry out a PPP project. Results also showed that the level of revenue from toll fees in this project must be 80% or higher, at which point the government begins redemption. When the level is at least 80%, the government can begin redemption without having to offer a subsidy, thereby reaping profits. In Project B, if the level of revenue from toll fees falls to less than 75.20%, it would be more efficient to carry out a government-financed project. The

government can begin redemption without offering a subsidy when the level is at least 103%.

The analysis concluded that PPP projects in the Republic of Korea have become more efficient from the perspectives of users, concessionaires, and the government. The key results include (i) user fees of PPP facilities approached those of public facilities over time, (ii) the rate of return to private participants relative to the risks they bear declined thanks to the increased competition in the bidding process, and (iii) the subsidy provided by the government decreased over time. The improved efficiency of PPP projects in the Republic of Korea has been reflected in concession agreements. Overall, concession agreements have developed in the direction of protecting the interests of users and reducing the uncertainty for private participants as well as for the government.

Evidence of Contribution of PPPs to the National Economy

The promotion of PPP projects is expected to have ripple effects on the national economy through three channels: economic growth resulting from the inflow of private capital, increased social welfare resulting from the timely delivery of social services and the early realization of social benefits, and reduction in the government's fiscal burdens through better VFM.

As of the end of 2008, private financial resources of more than W20 trillion had been invested through PPP projects, resulting in estimated gross domestic product (GDP) growth of 0.198% based on the 2008 standard price.

The 14 PPP road projects were opened about 2 years ahead of schedule, resulting in the early realization of social benefits worth about W1.45 trillion. If the 14 PPP road projects had been implemented with government financing alone, their completion and operation would likely have been delayed; thus, the PPP projects have made the early realization of social benefit possible. If the projects had been completed 3 years earlier, the benefit would be about W2.47 trillion, and if the projects had been completed 4 years earlier, the benefit would be about W3.3 trillion.

Based on the results of several experimental VFM tests, VFM enhancement from 66 BTO projects was estimated to reach about W891 billion, while VFM from 30 BTL projects was estimated to be W89.6 billion. In the case of BTO projects, it was estimated to have secured an additional ex-post VFM worth W142.5 billion from the selected 11 projects. The analysis of BTL projects found that they were reducing both cost and time overruns, which worked to enhance the efficiency of investment in social infrastructure facilities. In the case of BTL projects, total project cost was reduced by 10.18% and the construction period shortened by 8.04%, resulting in an advantage over government-financed projects in terms of efficiency.

Although the effects for each category can be separated theoretically, they may overlap to a considerable extent in reality. Therefore, it is necessary to take considerable care in discussing the effects of PPP projects.

Budgeting, Reporting, and A Safeguard Ceiling for PPPs

A key to PPP projects is whether a government can maintain fiscal adequacy and stability through the use of PPPs. The growing interest in PPPs has increased the need

for clear rules for budgeting and accounting. An important issue in the Republic of Korea is how to report PPP projects to and get approval from the National Assembly. Even if the government drives a large-scale PPP project forward, which can involve large-scale borrowing, the total project amount must be limited to a suitable amount for maintaining fiscal soundness and sustainability.

There is considerable controversy on the budgeting and reporting rules for PPPs in the Republic of Korea. Some argue that the present value of government payments should be counted as liabilities, and the government should get approval of PPP contracts from the National Assembly in advance. Others argue that the government obligation arising from a PPP contract, which is a service contract, does not constitute a liability and does not need approval from the National Assembly.

The MOSF sets the investment ceiling for BTL projects for the fiscal year and reports this ceiling to the National Assembly in advance of the annual budget submission. In case of BTO projects, however, the fiscal costs and risks associated with them would then be disclosed. This disclosure rule is consistent with the 2004 recommendation from the International Monetary Fund (IMF) that if a government carries the majority of the risk in a PPP project, the government is the economic owner of the asset even where the private partner is the legal owner of the asset.

According to an amendment to the PPP Act, beginning with the 2010 budget year, all BTL projects should be reviewed and pre-approved by the National Assembly. The details of the BTL projects should be reported in advance to the National Assembly with the government budget documents. Future payment obligations for BTL projects, along with the significant terms of the project contracts that may affect the amount, timing, and certainty of future government budget payments (valued to the extent feasible) should be reported. The result of the VFM test on each project should be submitted as well. In the case of BTO projects, there is no change: fiscal costs and risks associated with BTOs would be disclosed as usual.

This study estimated the government's fiscal burdens and commitments from implemented and planned PPP projects, focusing on their effects on fiscal management in the past and in the future. The study estimated PPP effects on future fiscal commitments by categorizing them into three types. First, the study estimated the amount of fiscal burden from BTO projects that have already been signed and have fixed terms and conditions. Second, it estimated the amount of fiscal burden expected from BTO projects currently being promoted or planned by the government. Third, it estimated the amount of government payments to BTL projects based on two scenarios (Scenario 1 and Scenario 2). Finally, the study analyzed the amount of government disbursements that would be needed to provide MRGs.

The results of the analysis suggested a few policy implications. First, the amount of public financing for signed BTO projects is not yet at a level that can affect the stability of fiscal management; the forecast amount is expected to be far less than the 2% ceiling. Second, the size of the fiscal commitment for planned BTO projects in the medium-term PPP Plan is within the 2% boundary of fiscal stability. However, the amount of public financing could increase if any of the planned BTO projects are signed and implemented. Third, if the government carries out BTL projects within the ceiling of W37.6 trillion from 2005 to 2015, and after that, offers government payment in installments as in Scenario 1, there would be no fiscal problem. However,

if the government carries out BTL projects over the same time period at a total of W81.6 trillion, the government would face difficulty in maintaining the stability of fiscal management. This would have a negative effect on the government's fiscal operation from the increased burden on public financing over time. Therefore, the study recommended that the government concentrate resources on key BTL projects at a moderate financing level, instead of financing projects that amount to W81.6 trillion for a decade or longer. Fourth, even with the aggregate investment amount of signed and planned BTO plus W37.6 BTL projects, total fiscal commitment of public financing may stay within the boundary of 2% guideline under Scenario 1. The discussion thus far has not considered disbursements of the MRG, but any additional MRG disbursements could aggravate fiscal stability. It stressed, therefore, the government should take into account the additional fiscal burdens of MRG disbursements when making policy judgment about the scale of future BTO and BTL.

The study concluded that for the government to maintain fiscal stability and soundness, it should first conduct basic infrastructure projects on a temporary basis for a certain period (for example, 5 years), repay the governmental disbursements, and resume the remaining projects, instead of continuing to launch large-scale PPP projects over a short period of time.

PPP as Alternative Means of Fiscal Stimulus to Deal with the Global Financial Crisis

Although private participation in infrastructure projects has steadily increased since the introduction of the PPP system in the late 1990s, the initiation of new PPP projects has declined sharply as a result of the recent global financial crisis. The number of contracts signed sharply fell in 2008 and 2009, increasing the likelihood that the amount of private investment actually executed will shrink in the future. The number stood at less than 70% of initial projections because of the financial market crisis and delays in project progress. Accordingly, the government has worked out measures for revitalizing PPP projects by providing financial assistance to projects experiencing financing difficulties and by reducing project risks resulting from external factors.

To ease financial burdens from the global financial crisis, the government announced its first revitalization initiative in February 2009 and revised the PPP Basic Plan accordingly. The government has eased financial burdens on concessionaires by lowering the equity capital requirement ratio. The minimum equity capital requirement ratio was 25% for BTO projects and 5%–15% for BTL projects before the crisis. Under the first revitalization initiative, the ratio has been decreased to 20% for BTO projects and 5% for BTL projects. The government has increased by 50% the upper limit of the payment guarantee provided by the Infrastructure Credit Guarantee Fund (from W200 billion to W300 billion) to help ease difficulties in debt financing for large-scale PPP projects. The government improved the system by easing regulations in case of change in composition of equity investors: projects that do not have MRG provisions are now exempt from refinancing profit-sharing obligation in case of simple changes in composition of equity investors.

For BTO projects, when there is a change of 0.5 percentage points or more in the base interest rate (in the case of 5-year bank bonds with credit grades of AAA, for example) in the concession agreement, the government would make up for the

change. For BTL projects, the government has reduced the period for readjusting the benchmark bond yields (on government bonds) from 5 years to 2 years, while replacing or redeeming 60%–80% of the excess or shortage based on the interest rate gap of 50 basis points between government bonds and bank bonds.

In August 2009, the government announced its second revitalization initiative to create an enabling environment for active private investment in PPPs, while minimizing financial burdens. The changes include improvement in project structure, improvement in conditions for funding, and enhanced reliability.

The project structure improvement involves a special temporary arrangement to pay back the invested funds to the concessionaire when the project agreement is terminated due to inevitable reasons. The arrangement modifies the payback calculation method as follows. When the agreement is terminated during the operation period, the depreciation method for invested private funds has been revised from the current declining balance method to the straight line method. This is to increase the capability of raising senior debt by increasing the security solvency of the project. But in the case where the agreement is terminated because of the concessionaire's fault, subordinated debt and capital are excluded from the calculation of the amount payable in order to encourage greater responsibility on the part of the private operator. The special temporary arrangement is only applicable to new projects in 2009–2010, although it could be applied to projects for which the financing agreements have not yet been signed, according to the judgment of the competent authorities.

The government's introduction of a new investment risk-sharing method, known as the new risk-sharing structure, is intended to improve the PPP project structure. Under the new risk-sharing structure, the government shares the investment risk with the private company by compensating the base (raw) cost of the project, calculated as the sum of private investment cost and the interest rate of government bonds. The government payment is made to cover the shortfall in the actual operation revenue compared to the share of investment risk by the government. When the actual operation revenue exceeds the share of investment risk, the private company redeems the government subsidies on the basis of and within the limit of the amount previously paid. Subsidies are provided only when the actual operation revenue surpasses 50% of the share of investment risk.

In response to demands for improvement of funding and procurement, the government introduced measures to reduce burdens caused by regulations and restrictions on financial institutions. One measure involves the exclusion of the loan amounts for PPP projects from the parameters used when estimating loans for small and medium businesses. Also, active investment is encouraged by financial companies through inclusion in the major management evaluation category of the contribution level to social overhead capital (SOC) investment projects such as PPPs. This requires a revision to the enforcement regulations by the Financial Supervisory Service.

The government seeks to establish and operate a neutral dispute arbitration organization for fast and fair resolution of disputes (this requires revision of the PPP Act). The organization, tentatively named the Dispute Arbitration Committee for PPP Projects, would conduct fair arbitration of disputes that are difficult for the parties to settle. In addition, PPP projects need to be expanded to include green SOC so

that private companies can actively invest in environmental infrastructure projects. This may include construction of bicycle roads, new renewable energy facilities, and restoration of ecological streams.

Challenges Ahead

Because many of the government obligations for PPP projects are long-term commitments, such as government payments for BTL projects and MRG payments for BTO projects, it is important to examine whether the government can maintain fiscal adequacy and stability while promoting PPPs. One solution is to institute a safeguard ceiling: when the government moves ahead with a large-scale PPP project that involves large-scale borrowing, the total project amount would be limited to a certain level suitable for maintaining fiscal soundness and sustainability. The Five-Year National Fiscal Management Plan, 2007–2011 set a limit to the size of the PPP program. Following the United Kingdom practice, the total annual government payment for PPP projects is limited to less than 2% of total government expenditure. The current forecast of PPP projects in 2009 suggests that the figure will reach 1.9%, which means the government can maintain future PPP payments within a sustainable level. To sustain the 2% limit over time, there remain some questions to address for effective implementation and monitoring, which include: (i) who evaluates the ceiling, (ii) when and how often is the ceiling evaluated, (iii) to what extent is the ceiling mandatory, and (iv) how is the ceiling reported to and approved by the National Assembly. Also, the government will need to develop detailed guidelines for implementing the ceiling.

With regard to BTL-related financial obligations, the government has revised the PPP Act, making future government payments for BTL projects subject to review and approval by the National Assembly. This will considerably improve transparency and strengthen fiscal discipline for implementing BTL projects, but more effort will be needed to assess and disclose more comprehensive PPP-related fiscal burdens and risks, including contingent obligations. With regard to accounting treatment of PPPs, there are no globally accepted accounting rules. The government is introducing accrual basis accounting in 2011. Some argue that parts of future government payments for BTL projects should be recorded as assets and related liabilities on the government balance sheet. In deciding accounting rules, the government should examine not only the technical nature of the payments, but also the impact and implications of the newly introduced accounting principles. This issue is currently under review, and a decision is expected in the near future.

Another issue to address is ex-post management of PPP projects. So far, most of the government efforts have focused on improving the procurement process from the project initiation to the construction stage; relatively little attention has been paid to the operational phase. Currently, competent authorities are in charge of managing and monitoring service performance of individual projects. As many projects enter into the operational phase, however, strengthening ex-post management and monitoring has become an important issue. Strict monitoring is required because large amounts of government payments and support are associated with operational performance in the forms of BTL service or MRG payments. Since common problems often arise from the operational stage of projects, the government should develop general and sector-specific standard guidelines for ex-post operation and management of PPP projects.

Also, several issues should be examined regarding refinancing and renegotiation of contracts in the construction and operational phases. Since refinancing is initiated by the private sector for early realization of financial profits, the government must give extra care to ensure that refinancing does not cause project instability or reduce benefits for public users. Therefore, the government should set clear standards and principles for refinancing. Although it is desirable to maintain contract terms throughout the concession period to reduce uncertainty, renegotiation may be inevitable for some PPP projects. A PPP project entails a long-term contract and substantial changes to the business environment or policy objectives may require contract changes to continue with the project and improve VFM. Therefore, the standard concession agreement should include details of renegotiation conditions that ensure flexibility over the long term.

With 15 years' experience in PPP projects, the Republic of Korea has established appropriate institutional settings and developed a mature PPP market. However, the government is still facing many controversial issues and challenges that need to be solved to move forward to a more advanced stage of PPP development. The PPP system should continue to be improved in the direction of maximizing benefits and VFM, while minimizing downsides and risks.

Volume 2: Cases of Build–Transfer–Operate Projects for Port and Build–Transfer–Lease Projects for Educational Facilities

In the Republic of Korea, 46 types of infrastructure facilities in 15 sectors are currently eligible for PPP procurement. Among those most active PPP projects involve transport facilities, such as roads, ports, and railways. Also, some PPP projects include social facilities, such as waste treatment facilities, educational facilities, military housing projects, and bachelor's resident projects.

Although the performance of PPP projects reveals difference among sectors, both economic and social facilities have successfully employed the PPP method. This volume investigates port facilities and educational facilities in detail because these facilities have demonstrated relatively successful PPP implementation. As discussed earlier, BTO and BTL are the most popular PPP methods in the Republic of Korea. Road and port projects tend to employ the BTO method, while environmental and educational projects use the BTL method. Considering that PPP projects involving port and educational facilities have not had much success in developing countries, detailed case studies of those projects in the Republic of Korea could provide useful lessons and provide a good model for replication.

Build–Transfer–Operate Projects for Port Facilities

Due to the rapid increase in transport volumes since 1980, the existing port facilities in the Republic of Korea have run into limitations in handling cargo. From 1994 to 2008, transport volumes at ports increased by 4.9% per year on average. Such an increase in transport volume could not be sustained without timely expansion of port facilities; public investment in port facilities has been on a steady rise every year. In 1994, the government invested W400.5 billion to expand port facilities; it increased that amount by 11.6% per year on average until it reached an investment of W1,858.3 billion in 2008. Despite the increase in the public investment in

port facilities, private investment has also been required to develop or expand port facilities over that period of time; in fact, private investment has gradually replaced a portion of the public investment.

The number of PPP projects in port facilities totaled 19, as of early 2009; their aggregate investment amounted to W7,358.4 billion, which accounted for 12.4% of port investment between 1998 and 2005. Private investment through PPPs has been increasing steadily, surging to W810.5 billion in 2008. The annual investment of purely private capital in port facilities (except for construction subsidies) was W152.7 billion in 2002; this amount was expected to reach a peak of W824.4 billion in 2009 before declining gradually to W53 billion in 2015. This decline is expected because most of the port development projects are planned to be developed by 2011.

All 19 PPP port projects have been implemented under the BTO scheme. As of 2009, six are operational: Busan New Port Phase 1, Mokpo New Outer Port Phase 1-1, Mokpo New Outer Port Phase 1-2, Incheon North Port Phase 1-1, Incheon North Port Multipurpose Warf, and Gunsan Bieung Port. Some of the PPP port projects are progressing well with few problems, but others are experiencing troubles in actual management. For example, the Busan New Port Phase 1 Project is operating smoothly, while the Mokpo New Outer Port Project is experiencing problems.

The implementation process for PPPs in port facilities includes (i) designation of a potential PPP project, (ii) formulation and announcement of an RFP, (iii) submission of proposals, (iv) evaluation of proposals, (v) negotiations and designation of a concessionaire, (vi) introduction and approval of the Detailed Engineering and Design Plan for Implementation, (vii) and project completion and operation.

To evaluate the effects of PPPs on port facilities—such as cost reduction vis-a-vis government projects, facility expansion, and diversification of investors—a survey was conducted among private participants in port projects (concessionaires), experts who conducted research and provided advice as well as those involved in evaluating proposals and negotiations, relevant government officials, and lenders. A total of 78 respondents were asked to rate the effects of PPPs on port facility construction on a scale of 1 to 5. The concessionaire group rated the effects of PPPs on port facilities from 3.20 to 3.85, and the policy and advisory groups rated the effects from 3.11 to 3.89. The survey indicates that stakeholders from both the private and public sectors had positive views of PPPs in port facilities. Specifically, the "facility expansion" effect of PPPs was rated highly, and "cost reduction" and "diversifying investors" effects were rated fairly well.

The efficiency effects of PPP projects can be calculated by comparing the costs incurred from PPP projects in concession agreements and the estimated costs from solely public projects. To estimate the cost incurred by public projects, two procurement methods—turnkey bidding and an alternative bidding method—were considered by applying the successful bidding ratios in public port projects to the costs announced in the RFPs for PPP projects. Among the 19 PPP port projects, 17 were analyzed because they involved signed concession agreements; 2 port projects were still under negotiation as of 2008. By comparing the PPP projects with the turnkey-based government projects, the study estimated that W648.7 billion was saved. By comparing PPP projects with the government projects using an alternative bidding method, the study estimated that W342.3 billion was saved.

To date, the rate of return for PPP port projects has been falling. In the Mokpo New Outer Port Project, a 15.1% rate of return was established in the 2000 concession agreement. Recently, the project has experienced a 6% pre-tax actual rate of return and a 7% after-tax actual rate of return. For the most recent case, the Busan New Port Project Phase 2-3, a 6.26% rate of return was established in the 2006 concession agreement. This downward trend is due to a drop in interest rates and improvement in risk management.

So far, all PPP projects for port facilities have been implemented using the BTO scheme regardless of the facility type. The government should consider implementing even profitable facility projects in ways other than the BTO method, if necessary. A possible alternative would be the BTL scheme.

Cargo throughput is highly sensitive to market conditions and, thus, hard to predict. The problem arises especially when the range of possible changes in cargo throughput gets so broad that a private investor or the government is not able to estimate risks. One solution would be to enable changes to be made in the timing and scale of project implementation by linking these to possible changes in cargo throughput. Under this scenario, a concessionaire would be allowed to request application of a trigger rule for a project under construction. This would enable the concessionaire to consult with the government to adjust the timing and scale of the project, which in turn could improve profitability.

Build–Transfer–Lease Projects for Educational Facilities

As the Republic of Korea's economy has rapidly advanced since the 1990s, demand for quality education has increased. This led to a popular demand to improve educational conditions. In addition, the aging of the population has led to increasing demand for lifetime education, which requires schools to serve also as training and cultural centers for all people. This, coupled with the increased demand for optimal class sizes amid heightened public interest in educational quality, has led to rising demand for adequate educational facilities.

To meet the new demand for educational investment, government in 2005 introduced BTL projects for educational facilities. Since then, BTL projects for educational facilities have attracted considerable investment, with an accumulated total investment in announced projects reaching over W5 trillion. In terms of location, BTL projects for schools have been promoted not only in the metropolitan areas, including Seoul and Gyeonggi-do, but across the entire nation.

As of January 2008, a total of 137 BTL projects for construction of elementary, middle, and high school facilities were ongoing, with an aggregate investment of W5.31 trillion. In 2005, the first year of the BTL scheme for schools, approximately W1.3 trillion was invested in 38 projects; investment peaked in 2006, with W2.4 trillion invested in 58 projects. Total investment fell in 2007 to W1.6 trillion invested in 41 projects. The scale of annual subsidies for investment in school facilities are projected to be up to W1.5 trillion after 2017.

The implementation process for BTL projects in educational facility includes (i) development of a project proposal; (ii) implementation of a feasibility study and VFM test; (iii) submission of a project proposal, determination of total investment ceiling, and

National Assembly approval; (iv) formulation and announcement of project plans; (v) evaluation of project proposal and designation of potential concessionaire; and (vi) conclusion of concession agreement.

The cost overrun analysis of 14 BTL school projects shows that the concession agreements for all of the projects were concluded with costs that did not exceed the estimated project cost or the total project cost announced in the RFPs. The costs for completing school facilities, which are now in operation, also did not exceed the announced limits in the RFPs. Competition among the bidders contributes to trimming the project costs. On top of this, construction risk is transferred to the concessionaire after the signing of the concession agreement; this lessens the demands from concessionaires to increase construction costs. Construction risk for completed projects is shown to decrease by contrasting the estimated construction periods in the RFPs announced in 2005 with actual construction periods. For example, the construction periods of all the projects analyzed were shorter by 8.45% than the estimated construction periods announced in the RFPs.

In surveys of both facility users and school administrators, satisfaction levels for BTL-built schools were higher (based on t-test) than for government-financed schools.

The strengths of using the BTL method for school facilities can be summarized as follows: the BTL projects have demonstrated higher efficiency than government projects by providing timely educational services for ordinary citizens; and major stakeholders, including students, parents, teachers, and officials, generally expressed higher levels of satisfaction with BTL projects.

Most of the BTL projects are at initial stages and have long operational periods; therefore, the government should make greater efforts to strengthen the process of project operation and performance management and take preemptive measures to stave off potential risks. Ongoing projects for educational facilities are primarily focused on new construction and remodeling existing educational facilities for elementary, middle, and high schools, and college dormitories. However, the government should work to diversify the coverage of BTL projects for educational facilities to serve the various expectations of users. To cultivate the minds and bodies of the youth and meet manifold cultural and welfare demands of the community, the government should pay extra attention to building multipurpose cultural, athletic, and welfare facilities; computer and electronic game centers; and academic instruction centers for students of low-income family. Through development of multi-use community complexes, more diverse BTL projects will be able to serve the diverse needs of the residents of all age groups and improve their quality of life.

Attachment to Case Studies from Korea on Public–Private Partnership Infrastructure Projects: Global Country Comparison of PPP Frameworks and Projects

As part of regional technical assistance, an international conference entitled "Knowledge Sharing on Infrastructure Public–Private Partnerships in Asia" was held in Seoul. Co-organized by the Korean Development Institute and the Asian Development Bank (ADB) in collaboration with the ADB Institute and the World Bank Institute, the conference was held on 19–21 May 2009, which attracted 79 global participants including 20 resource persons and 33 invited participants from developing member countries

for knowledge sharing. Based on presentations made during the conference, the attachment introduces country public–private partnership (PPP) frameworks and PPP project case studies, providing a comprehensive global country comparison.

The first part presents PPP frameworks of four countries: Australia, India, the Republic of Korea, and the United Kingdom. An in-depth description is provided on the regulatory and legal system of PPP, along with processes of PPP project implementation following PPP procurement procedure for each country, using a comparative framework. This part was intended for comparative assessment of different country approaches to PPP program management and implementation.

The second part includes PPP project case studies of several countries in various sectors: six countries (the People's Republic of China, India, Japan, the Republic of Korea, the Philippines, and the United States) and five sectors (port, road, education, health, and water). Each detailed case study includes the project summary and rationale of PPP implementation. Also the process of PPP project implementation is provided—from preparation, bid, and evaluation to contractual arrangement. Issues and key lessons are contained in the manuscript, along with realized benefits from PPP implementation. Those case studies of PPP in various sectors try to disseminate features of successful PPP experiences and models to developing member countries that are embarking on, or in the initial stages of, launching their PPP programs.

Volume 1:
Institutional Arrangements and Performance of Public–Private Partnerships

Introduction

The term public–private partnership (PPP) project means a project to build and operate infrastructure such as roads, ports, railways, schools, and environmental facilities—which have traditionally been constructed and run by the government—with private capital, thus tapping the creativity and efficiency of the private sector.[1] PPP came out of the commercialization and privatization processes initiated in the 1980s in countries, such as the United Kingdom, where increased private sector participation was seen as beneficial because it[2]

(i) removes conflicts of interest between the government's role of defining policies, regulating industries, and providing outputs;
(ii) allows the private sector to provide outputs in competitive markets because it has strong incentives to perform work based on the profit motive; and
(iii) reduces the government's expenditure commitments, which helps support macroeconomic stability, and allows public expenditure to be reallocated toward high priority outputs in sectors such as health and education.

PPP was first introduced in the Republic of Korea with the enactment of the Act on Promotion of Private Capital Investment in Social Overhead Capital in 1994. The act was amended by the Act on Private Participation in Infrastructure in December 1998, further spurring private investment in many social overhead capital (SOC) projects. In another amendment in 2005, a service-type contract, called a build–transfer–lease (BTL), project, was introduced, in addition to the existing user fee-type contract, called a build–transfer–operate (BTO) project. The scope and opportunities for participants in PPP projects have been diversified and expanded ever since.

The PPP market in the Republic of Korea has grown and developed into a stable and highly profitable financial market thanks to the government's systemic support and management to vitalize the PPP program over the past decade. This effort has solidified the PPP market's position as a new mode of raising funds to make up for insufficient government funding. The private sector's interest is rising in the government's policy to reinvigorate PPP financing, as part of the latter's efforts to improve its promoting strategy of PPPs. As of the end of 2008, more than 400 PPP projects were under way. Out of those, about 110 BTO projects and 140 BTL projects have been completed and are in operation.

Recently, there has been growing demand in the Republic of Korea to set up a sound fiscal management system for PPP projects. PPP investment has long been

[1] The term "infrastructure" here refers to a wider range of facilities than the term "social overhead capital." For instance, "social overhead capital" includes economic infrastructure, such as roads, railways, seaports, airports, water resources, and industrial complexes, whereas "infrastructure" includes economic infrastructure and social infrastructure, such as schools, environmental facilities, and national defense facilities.

[2] ADB. 2008. *Special Evaluation Study on ADB Assistance to Public–Private Partnerships in Infrastructure Development.* Manila.

treated separately from publicly financed investment and has not been under the direct accounting and regulation of government expenditure. In this aspect, there are a number of issues specific to PPPs, such as determining the government subsidy between the competent authority and the private concessionaire, contracting future payment obligations for 10–20 years, determining whether or not the PPP assets are recognized as assets on the government's balance sheet, and forecasting future expected or contingent government revenues. There is a need to develop a fiscal guideline to define the proper level of private sector participation, and the investment portion against the budget and suggested criteria for project selection.[3] One method being considered is linking the PPP implementation and investment plans to the government budget plan in the medium-term expenditure framework.

This study is divided into two volumes. The first volume explores the institutional framework and the performance of the PPP system in the Republic of Korea, and the recent strategies and initiatives for effective implementation and management of PPPs. The latest policy measures to reinvigorate PPP investment in light of the global financial crisis that began in 2008 are included. The second volume summarizes the cases of PPP port and education facilities projects.

Chapter 2 of this volume will describe the details of institutional settings for public–private partnerships in the Republic of Korea. Topics discussed include the legal framework for PPPs, decision-making organizations, procurement schemes, government support for land expropriation, financial and tax incentives, concession termination conditions, and training and education program for capacity building.

In Chapter 3, the trends and current status of PPP program implementation as of September 2009 are summarized. An alternative PPP approach, the BTL method, which was introduced in 2005, is explained. A total of 173 BTO projects and 242 BTL projects worth W12.2 trillion have been announced and undertaken as of September 2009. This paper calculates and estimates the number of projects—either national or local, solicited or unsolicited—and the government's fiscal commitment to those projects. Contingent liabilities from the minimum revenue guarantee (MRG) will be addressed as well.

Chapter 4 summarizes the PPP implementation procedures. The PPP Act and the PPP Enforcement Decree regulate general procurement procedures for PPP projects. Other regulatory measures are included in the PPP Basic Plan, managed and revised annually by the Ministry of Strategy and Finance (MOSF), and in the Standard Guidelines managed by the Public and Private Infrastructure Investment Management Center (PIMAC). This chapter examines the detailed implementation process by project type and initiation and defines the roles of associated parties, such as the competent authority, private company, the MOSF, line ministries, and PIMAC at each step. BTO and BTL projects are examined separately.

Chapter 5 provides information about how the Government of the Republic of Korea manages and monitors PPP project performance. PPP projects are managed by each competent authority (for example, the Ministry of Land, Transport and Maritime

[3] J. H. Kim. 2005. Developing and Managing a Public Investment Program in Korea. Paper presented at the International Monetary Fund–Korea Development Institute joint seminar on Public Infrastructure Investment and the Role of Public–Private Partnerships. Seoul, Korea. 8–9 November.

Affairs; the Ministry of Environment; Seoul Metropolitan Government; Busan Metropolitan City; etc.) and the management structure is stipulated in each concession agreement. This chapter raises several issues in refinancing and renegotiation as well. Refinancing guidelines are well documented.

Chapter 6 examines tangible evidence of cost savings and efficiency gains from PPP projects. Prior to this study, there had been little research done on the performance of PPP projects in the Republic of Korea. This chapter evaluates the economic efficiency of private investment projects through microeconomic empirical analysis. The analysis tries to estimate the efficiency of PPP projects from the perspectives of three parties: users, concessionaires, and the government.

Chapter 7 provides additional evidence of the contribution of PPPs to the national economy. An analysis is conducted to find evidence of PPP effects on economic growth and social welfare in the Republic of Korea. Based on macroeconomic analyses, the coefficient of PPP contribution is estimated and reported. To estimate the contribution of PPPs to social welfare, the study analyzes some PPP-built roads in operation. It is clear that the PPP investment has helped the timely completion and operation of the road projects in comparison with road projects built by the government alone. The study estimates the social benefit that resulted from the timely completion and operation of the PPP roads, a benefit that might have been lost by lengthy delays. Furthermore, several experimental evaluations on some selected BTO and BTL projects are performed to check whether better value for money (VFM) is achieved by the PPP projects.

Chapter 8 deals with the issues of budgeting, reporting, and accounting treatment of PPP projects. In the Republic of Korea, there is a lot of controversy on the PPP budgeting and reporting rules. This chapter shows how the government treats PPPs in the annual budget and reports information on PPPs to the National Assembly. There has been an effort to institute a safeguard ceiling for PPPs to reduce the fiscal risk of such projects to the government. The chapter reviews discussions regarding a safeguard ceiling to manage the aggregate volume of PPPs, including examples from other countries. The chapter examines the possibility of setting a sustainable ceiling proportional to the government budget concerned as a means of establishing a new fiscal rule.

Chapter 9 presents recent PPP revitalization initiatives by the government. The initiation of new PPP projects has declined sharply as a result of the recent global financial crisis that began in late 2008. The volume of PPP contract signings sharply fell in 2008 and 2009, which increases the likelihood that the amount of private investment actually executed will shrink in the future. Accordingly, the government has worked out measures to revitalize PPP projects by helping financially struggling projects and reducing project risks resulting from external factors, including abrupt changes in interest rates. The First Revitalization Initiative was announced in February 2009, and the Second Revitalization Initiative was announced in August 2009.

Chapter 10 provides lessons from PPP experiences in the Republic of Korea and identifies challenges for successful PPP implementation and management.

Institutional Settings for Public–Private Partnerships

Background in Chronology

Following decades of rapid economic growth, the Republic of Korea found itself at the beginning of the 1990s with a serious shortage of infrastructure facilities, such as roads, railways, seaports, and airports. The government, judging there would be limits to its ability to fund the needed construction of infrastructure facilities, had come to feel the need to induce private sector participation in infrastructure investment as an alternative means of replenishing infrastructure. The government began to push for public–private partnership (PPP) projects in earnest with the August 1994 enactment of the Act on Promotion of Private Capital Investment in Social Overhead Capital.

Because of the financial crisis that hit the Republic of Korea in late 1997, however, the promotion of PPP projects fell into a slump. So the government made an across-the-board amendment, called the Act on Private Participation in Infrastructure, in December 1998, which called for, among other things, reinvigorating PPPs through various government policy supports, including the minimum revenue guarantee (MRG) program. The government modified this law again in January 2005, expanding the range of facilities covered from economic infrastructure—such as transportation facilities like roads, railways, seaports, and environmental facilities—to social infrastructure, such as schools, military residences, housing and welfare facilities for the aged, and cultural facilities. It introduced the build–transfer–lease (BTL) method in addition to the existing build–transfer–operate (BTO) method, expanding the scope of participation in PPP financing and diversifying opportunities. In October 2009, the MRG program was ended and was replaced by the support measure of compensation of base (raw) cost, under which the government shares investment risks within the limit of the government's cost if the project were conducted as a public project.[4]

Chronologically, the changes in the nation's PPP project characteristics can be roughly divided into four periods, as shown in Table 2-1.

Phase I covers the period from the 1960s to August 1994, during which the nation sporadically conducted PPP projects based on individual laws that applied to road and port projects.

Phase II covers the period from the enactment of the Act on Promotion of Private Capital Investment in Social Overhead Capital in August 1994 to December 1998, just before its comprehensive revision in the Act on Private Participation in Infrastructure.

[4] The new risk-sharing scheme was adopted in 2009. Through the system, the government pays the amount of the shortfall when the actual operational revenue is less than the level of risk-sharing revenue. When actual operational revenue exceeds the risk-sharing revenue, the government subsidies are redeemed on the basis of realized payments. The private sector also shares the risk, as subsidies are provided only when the actual operational revenue is greater than 50% of the risk-sharing revenue.

During this period, the government set clear criteria on concession periods, user fees, and government support, as well as more clearly specified project implementation processes. Despite these changes designed to encourage private investment, private investment sharply declined due to the financial crisis that hit the nation in late 1997. The amount of actual PPP activity during this period remained quite sluggish. From the viewpoint of policy makers, the immediate aftermath of the financial crisis was a period when they badly needed expanded private investment into social infrastructure to stimulate the economy and foreign direct investment to upgrade the Republic of Korea's sovereign credit rating to overcome the financial crisis. During this period, there was an even greater need to reinvigorate PPP projects. The government therefore took steps to make a wide range of systemic improvements, including enactment of the Act on Private Participation in Infrastructure in December 1998.

Phase III spans the period from early 1999 to 2004, during which time the government introduced various support systems to reinvigorate private investment projects, including the MRG program. The government attempted to solve various problems that had been continuously raised in the course of promoting PPPs. Such measures included removing artificial divisions of facilities eligible for PPP support; diversifying project promotion patterns into solicited and unsolicited projects; requiring feasibility and appropriateness studies for the selection of projects; establishing the

Table 2-1 Chronological Changes and Characteristics of Public–Private Partnership Financing in the Republic of Korea

Period		Characteristics
Phase I	1968–1994	• Sporadic promotion of public–private partnership (PPP) projects based on individual laws (Road Act, Port Act, etc.)
Phase II	1994–1998	• The Republic of Korea began to induce private capital to build infrastructure facilities through systematic procedures with enactment of the Act on Promotion of Private Capital Investment in Social Overhead Capital • Implementation remained sluggish due to immature PPP conditions, government's failure to play the proper roles, and excessive regulations due to fear of controversies over preferential treatment • Formulation of policy package for inducing private participation, across-the-board legal revision through the Act on Private Participation in Infrastructure
Phase III	1999–2004	• Positive government support and division of role for revitalizing private investment • Reinvigoration of private sector's investment and project participation
Phase IV	2005–present	• Revision of the Act on Private Participation in Infrastructure • Inclusion of nine residential infrastructure facilities in the scope of PPP projects and the introduction of the build–transfer–lease formula as a new method • Introduction of mandatory feasibility study for unsolicited projects (costing W200 billion or more) • Revitalization of infrastructure fund through public subscription • Abolition of minimum revenue guarantee and introduction of government compensation of base (raw) cost

Source: Ministry of Strategy and Finance. Act on Promotion of Private Capital Investment in Social Overhead Capital and Act on Private Participation in Infrastructure (PPP Act). Seoul.

Public and Private Infrastructure Investment Management Center (PIMAC) (formerly known as the Private Infrastructure Investment Center of Korea);[5] improving the Korea Infrastructure Credit Guarantee Fund (ICGF) system; establishing and operating an infrastructure fund; and granting buyout rights.

Finally, Phase IV covers the period from the introduction of the BTL method in January 2005, during which time the government revised the Act on Private Participation in Infrastructure, expanding the categories of PPP projects from economic production facilities to social and residential facilities. Also, it diversified the PPP implementation methods, such as implementing the BTL method for solicited projects.

Legal Framework

Hierarchy of Legal Framework

The legal framework of the PPP system in the Republic of Korea was first put in place in 1994 with the enactment of the Act on Promotion of Private Capital Investment in Social Overhead Capital. Overall revision of the act by the Act on Private Participation in Infrastructure (PPP Act) took place in December 1998 following the 1997 financial crisis. The revision strengthened risk-sharing mechanisms such as the MRG, buyout rights, and sharing of foreign exchange risk. The government's willingness to share more of the project risks contributed to encouraging the private sector's participation in infrastructure development.

The PPP Act was amended again in 2005. This revision introduced the BTL method and expanded eligible facilities to include social infrastructure, such as educational, cultural, welfare, environmental, and defense facilities. In addition, the act established a specialized agency for PPP projects called PIMAC, part of the Korea Development Institute (KDI), to provide technical assistance to the Ministry of Strategy and Finance (MOSF) and procurement authorities.[6]

The PPP Act and the PPP Enforcement Decree are the principal components of the legal framework for PPP projects. It clearly defines eligible infrastructure types, procurement types, procurement processes, the roles of the public and private parties, and policy supports, among others. As a special act, the PPP Act takes priority over other acts. The act exempts PPP projects from strict government regulation in the area of national property management and allows a special purpose company (SPC) to play the role of competent authority.

The hierarchy of the legal arrangements for PPPs is

- PPP Act,
- PPP Enforcement Decree,
- PPP Basic Plan, and
- PPP Implementation Guidelines.

[5] The Private Infrastructure Investment Center of Korea was merged into the Korea Development Institute, establishing PIMAC as a result of the second amendment of the Act on Private Participation in Infrastructure in January 2005.

[6] See footnote 5.

Under the PPP Act, the PPP Basic Plan and PPP Implementation Guidelines together address, in detail, policy directions, procurement steps, and government supports. The PPP Act directs the MOSF and PIMAC to issue the PPP Basic Plan. The Basic Plan provides PPP policy directions, project implementation procedures, financing and refinancing options, risk allocation mechanisms, payment schemes for government subsidies, and documentation instruction. PIMAC developed the PPP Implementation Guidelines to improve transparency and objectivity in PPP implementation. Some examples include guidelines for the following: VFM test, request for proposal (RFP) preparation, standard output specification by facility, tender evaluation, standard concession agreement, and refinancing. The Basic Plan and PPP Implementation Guidelines are annually updated to reflect other relevant legal and regulatory changes and market conditions. Continuous development of the act and related regulations demonstrates a strong commitment on the part of the government to strengthen private sector's confidence in the PPP program.

Authorization and Permission under Other Laws

When large-scale infrastructure projects, such as roads, railways, and ports are implemented, the PPP project company must obtain various authorizations and permissions from relevant public authorities, for example, authorization for change of land usage and occupation of roads for construction. This is time-consuming and costly for the project company to obtain all the necessary authorizations and permissions.

To reduce time and cost for authorization and permissions and to facilitate implementation procedures of PPP projects, the PPP Act stipulates that, if the competent authority has issued the public notice of a Detailed Engineering and Design Plan for Implementation (DEDPI), the authorizations and permissions prescribed in the laws concerning the relevant PPP project and other related laws are considered granted. In addition, the issuance of the DEDPI fulfills public announcement requirements under any related laws.

The competent authority acquires authorization and permissions associated with the PPP project after consultations with the related administrative agencies concerning the compatibility of the project with other laws; the competent authority then indicates when it intends to grant approval or modification of the DEDPI submitted by the project company.

This stipulation of authorization and permission under other laws in the PPP Act has been one of the critical factors for promoting PPP projects by streamlining the implementation procedures.

Organization of Decision Process

Ministry of Strategy and Finance and Public–Private Partnership Review Committee

Major players in the PPP program include the MOSF and the concerned line ministries. The MOSF is responsible for implementing the PPP Act, PPP Enforcement Decree, and the PPP Basic Plan. The MOSF is responsible for preparing the draft budget for PPPs as well. An important issue concerning the interplay among the MOSF and the line

ministries is that of fiscal discipline. The MOSF plays a central role in budgeting, as well as in preparing and implementing PPP investment plans. Often the main budgeting decisions are made in bilateral negotiations between the MOSF and the line ministry.

Given that PPPs involve both the government and the private sector and that the line ministries are the initial contact points, different opinions based on each party's interest are brought up on some issues. The MOSF has the task of reconciling these opinions, and it often takes time to reach an agreement among the parties. Therefore, the MOSF exercises tight control on public expenditures in the implementation stage. Ministries are required to spend within the limits set in the quarterly budget implementation plan. When deemed necessary, the MOSF is able to postpone or block part of PPP project expenditures.

Under the PPP Act, the PPP Review Committee (PRC) is organized and managed by the MOSF. The PRC considers the matters concerning the establishment of major PPP policies and key decisions in the process of implementing large-scale PPP projects.

The committee is composed of the minister of finance and strategy (chair), vice ministers of line ministries in charge of implementing PPP projects, and private sector experts with knowledge and experience in PPP projects.

The main responsibilities of the PRC are to deliberate on

- establishment of major PPP policies,
- establishment and modification of the PPP Basic Plan,
- designation and cancellation of a large PPP project (total project cost of W200 billion or above),
- formulation and modification of the RFP for a large PPP project,
- designation of a concessionaire of a large PPP project, and
- other matters that the MOSF proposes for the active promotion of PPPs.

Establishment of a Public–Private Partnership Unit: Public and Private Infrastructure Investment Management Center

To provide comprehensive and professional support for the implementation of PPP projects, the PIMAC was established under the revision of the PPP Act in 2005. As a result of the revision, the Private Infrastructure Investment Center of Korea (the predecessor of PIMAC) that was established in 1999 within the Korea Research Institute for Human Settlements, was reorganized and merged with the Public Investment Management Center into PIMAC, which was established as an affiliated organization of the KDI, a government-funded economic research institution.

The mission and roles of PIMAC are prescribed in the PPP Enforcement Decree. These include supporting the MOSF in the formulation of the PPP Basic Plan; supporting the competent authorities and ministries in the procurement process, such as assessment of feasibility and VFM for potential PPP projects, formulation of the RFP, designation of the concessionaire, evaluation of project proposals by private companies, negotiation with potential concessionaire, etc.; promoting foreign investment in PPP projects through consultation services and other related activities; and developing and operating capacity-building programs for public sector practitioners.

Besides the technical assistance described above, PIMAC conducts policy research related to PPP programs and provides policy advice to the MOSF and procuring ministries. It also develops guidelines for efficient and consistent implementation of PPP projects.

PIMAC contributes to the success of the PPP program in the Republic of Korea by effectively achieving its objective as a PPP unit in assisting the public and private sectors and promoting infrastructure projects.[7]

Procurement Schemes

Eligible Facility Types

Under the PPP Act, 46 infrastructure facility types in 15 sectors are eligible for PPP procurement. By listing eligible facility types in the PPP Act, the government aims to induce private capital to invest in the sectors where additional investment is needed for the benefit of the public. Some argue, however, that the listing of eligible facility types may restrict the flexible and innovative application of PPP procurement for new types of facilities. These critics recommend modification of the act for more comprehensive application.

Procurement Methods

Eligible procurement methods are divided into BTO and BTL, depending on the structure of the PPP project. Other procurement methods, such as build–operate–transfer (BOT) and build–own–operate (BOO) are applicable as well.

Build–transfer–operate method. Ownership of the infrastructure facilities is transferred to the government upon completion of construction, and the concessionaire is granted the right to operate them and gain return on investment (ROI). Since the concessionaire recovers its investment cost directly from user fees, commercial viability is a key element for implementing BTO projects on the part of the concessionaire. Most of the BTO projects are transport facilities such as roads, railways, and seaports.

Build–transfer–lease method. Ownership of the infrastructure facilities is transferred to the government upon completion of construction, and the concessionaire is granted the right to operate them and receive government payments (lease payment plus operational cost) based on operational performance (e.g., availability, service quality) for a specified period of time. The BTL method is used for those facilities where the concessionaire has difficulty recovering its investment cost through user fees. Facilities eligible for BTL projects mainly consist of social infrastructure, such as schools, welfare facilities, environmental facilities, and military residence, among others.

Build–operate–transfer method. The concessionaire assumes ownership of the infrastructure facilities for a specified period of time after completion of construction.

[7] A. Sanghi, A. Sundakov, and D. Hankison. 2007. Designing and Using Public–Private Partnership Units in Infrastructure. *Gridlines* (newsletter of the Public–Private Infrastructure Advisory Facility). September. pp. 1–5.

Table 2-2 Number of Eligible Infrastructure Facility Types by Sector (as of October 2009)

Sector	Infrastructure Type
Road (4)	Roads and ancillary facilities, non-road parking facilities, intelligent transport systems, transfer centers
Rail (3)	Railways, railway facilities, urban railways
Port (3)	Port facilities, fishing port facilities, eligible facilities for new port construction
Airport (1)	Airport facilities
Water resources (3)	Multipurpose dams, river-affiliated ancillary structures, waterworks
Communications (5)	Telecommunication facilities, information communication systems, information superhighway, map information systems, ubiquitous city infrastructure
Energy (3)	Electric source facilities, gas supply facilities, collective energy facilities
Environment (5)	Excreta treatment facilities and public livestock wastewater treatment facilities, waste disposal facilities, recycling facilities, sewage and sewage treatment facilities
Logistics (2)	Distribution complexes and cargo terminals, passenger terminals
Culture and tourism (9)	Tourist sites or complexes, youth training facilities, public and/or professional sports facilities, libraries, museums and art galleries, international conference facilities, culture centers, science museums, urban parks
Education (1)	Preschool and school facilities
National defense (1)	Military residential facilities
Housing (1)	Public rental housing
Welfare (3)	Senior homes and welfare medical facilities and facilities for remarried seniors, public health and medical facilities, child care facilities
Forestry (2)	Natural recreational resorts, arboretums

Source: Act on Private Participation in Infrastructure, Article 2. Republic of Korea.

Ownership is transferred to the government upon termination of the concession period.

Build–own–operate method. The concessionaire owns and operates the infrastructure facilities upon completion of construction.

Other methods are also used by the competent authority in RFPs for PPP projects and by the private sector in project proposals. Some examples of alternative methods include build–lease–transfer, rehabilitate–operate–transfer, rehabilitate–own–operate, and rehabilitate–transfer–lease.[8]

[8] Build–lease–transfer: Upon completion of construction of the infrastructure facilities, the concessionaire leases the facilities to others for a period of time, and upon termination of the lease, transfers ownership to the central or local government.

Procurement Initiation

PPP projects are categorized into solicited and unsolicited depending on who initiates the project.

Solicited project. The competent authority—central or local government—identifies a potential PPP project and solicits proposals from the private sector.

Unsolicited project. The private sector identifies a potential PPP project and requests designation of the project as a PPP from the competent authority. The concessionaire is selected under a competitive bidding process, although the initial proponent may obtain extra points in the bid evaluation.

Solicited projects have not attracted much intention from the competent authority because it takes considerable time and costs to initiate a PPP project, whereas unsolicited projects have been actively sought and implemented because the private sector assumes associated costs and risks. The government has recently made efforts to promote more solicited projects, since they can be implemented in line with the overall government infrastructure investment plan and priorities, unlike unsolicited ones.

Establishment of a Special Purpose Company

Private sector participants who intend to implement a PPP project establish a project company, a legal entity that acts as the concessionaire once the PPP contract is awarded. In general, construction companies, financial investors, and professional operators form an SPC for the associated PPP project.

In many cases, a project proponent is not yet incorporated as a company when it submits a project proposal. In such a case, the proponent must include a corporate establishment plan in the project proposal and, when designated as a potential concessionaire, must establish a company that is to conduct the designated PPP project before applying for approval of the DEDPI to the competent authority.

The SPC is prohibited from engaging in businesses other than those permitted by the competent authority at the time of its designation as the PPP concessionaire, except for insignificant businesses approved by the competent authority. The financing arranged by the SPC (or the concessionaire) should consist of equity and debt. To maintain the financial stability of the construction project, a minimum equity ratio of 25% or more is required during construction. If an equity investment by a financial institution exceeds 50% of total equity, the required minimum level of equity ratio can be lowered to 20%. During the operational period, a minimum equity ratio of 10% is required.

Rehabilitate–operate–transfer: Upon rehabilitation of the existing infrastructure facilities owned by the central or the local government, the concessionaire is granted the right to operate the facilities for a specified period of time.

Rehabilitate–own–operate: Upon rehabilitation of the existing infrastructure facilities, the concessionaire owns and operates the facilities.

Rehabilitate–transfer–lease: Upon rehabilitation of the existing infrastructure facilities, the ownership is reverted to the central or the local government, and the concessionaire is granted the right to manage and operate the facilities for a specified period of time to lease the facilities to others for use and to make a profit.

Implementation of Supplementary Project

The competent authority may allow the concessionaire to implement a supplementary project prescribed in the PPP Act when it deems it necessary for the concessionaire to secure ROI or to promote normal operation of the PPP project. Facility types eligible for supplementary projects include housing construction, site development, urban development, industrial complex development, tourism-related businesses, and cultural facilities. In the case of BTL projects, supplementary projects can be profit-yielding in order to reduce government payments or subsidies to the concessionaire and contribute to normal operation as well as maximize utilization of the main infrastructure facility.

A supplementary project involves building additional facilities to the main infrastructure facilities in an adjacent area of the project site. This is distinct from an ancillary project in which the concessionaire uses the main infrastructure facilities to increase the efficiency of the facilities and receive a return on part of the investment.

There are some requirements to be met for the implementation of supplementary projects. First, the cost of the supplementary project cannot exceed the total private project cost of the main infrastructure facilities. Second, the supplementary project must increase the economic benefit to the public and improve the feasibility of the main project. Third, it must maximize the effectiveness of facilities, increase benefits for the users, and be implemented in the vicinity of the main project site. On the other hand, a supplementary project is not allowed in the following cases: where it results in a sizable government investment in other related infrastructure sectors, where the investment scale of the supplementary project is much greater than the investment scale of the main project, and where it does not comply with other government policies.

Maintenance and Operational Right and Disposition for Public Interest

In the case of BTO and BTL projects, a concessionaire is granted the rights to manage and operate infrastructure facilities and to collect user fees for a specified period of time when the competent authority confirms the completion of construction. When a concessionaire has been granted management and operational rights, it is required to register with the competent authority. Management and operational rights are considered property rights, and the provisions of the Law of Realty in the Civil Act concerning real estate are applicable. A concessionaire with management and operational rights is responsible for the proper maintenance and management of the infrastructure facilities during the operational period.

Under special circumstances stipulated in the PPP Act,[9] "the competent authority may revoke or change an order or disposition made under the PPP Act, such as suspending or altering the associated infrastructure facilities construction; ordering the facilities to be remodeled, altered, moved, removed, or recovered to the original state; or taking any other necessary measures against the concessionaire judged necessary by the competent authority. If the measures taken by the competent authority cause any loss to the concessionaire, the competent authority is required to provide compensation for the loss after consulting with the concessionaire."

[9] Act on Private Participation in Infrastructure. Articles 46–47, Republic of Korea.

National Project versus Local Project

In the case of large PPP projects with total project cost of W200 billion or more (W100 billion or more for BTL projects), the PRC is required to review the project before it can be designated a PPP. These large projects are classified as national projects and administered by the MOSF throughout the procurement process—designation of the PPP project, announcement of the RFP, and designation of a concessionaire—and during the operational period. Other than those projects classified as national projects, the competent authority, in most cases the local government, administers the project, which is designated as a local project.

The national projects, mainly transport projects, make up a large share of the costs for PPPs. Most of the local projects involve small facilities, such as environmental facilities (sewage or waste treatment facilities), local roads, parking lots, and tourist facilities, among others.

Government Support for Land Expropriation

Land Expropriation Rights

To facilitate PPP implementation, the PPP Act grants land expropriation rights to the concessionaire. The concessionaire may entrust the competent authority, such as the local government, with the execution of the land purchase, compensation for loss, and resettlement of residents, among others.

Process of Land Expropriation

The overall process of land acquisition or expropriation for public works, such as infrastructure facilities and public buildings, is prescribed by the Land Acquisition Act. Unless a special provision is provided in the PPP Act or the related laws, the procedures under the Land Acquisition Act apply to the expropriation or use of the land needed for the implementation of PPP projects.

Under the Land Acquisition Act, land acquisition is carried out by the concessionaire or project company of the associated public works. Although land acquisition by consultation is desirable and must be sought in the first place, the land can be expropriated for public use when consultation is not feasible. After the plan for public facilities is approved, the concessionaire prepares a list of land compensation or expropriation that defines the land needed for the project such as its condition and scope of related parties. Then, the concessionaire announces a compensation plan and notifies the existing landowners, interested parties, and local governments. The concessionaire then estimates the compensation amount. After consultation with the landowners and interested parties, the concessionaire enters into a compensation contract with the landowners and interested parties.

In cases where land expropriation is involved, the concessionaire requests the Ministry of Land, Transport and Maritime Affairs for Authorization of the Project, which is an official step to determine whether the land and related property are appropriate objects for expropriation. The ministry conducts consultations with relevant public authorities and collects opinions from the concerned Land Tribunal and interested

parties before deciding whether to grant Authorization of the Project. After the Authorization of the Project is granted, the concessionaire prepares a list of land compensation or expropriation, announces the plan to compensate the landowners and notifies the owners, estimates the compensation amount, and consults with related parties. In cases where consultation cannot be conducted or concluded within 1 year after the announcement of Authorization of the Project, the concessionaire may request a Decision of Expropriation from the concerned Land Tribunal. The tribunal considers the request by the concessionaire after publicly announcing its contents and collecting opinions from related parties. When the Decision of Expropriation is issued in the form of written documents by the tribunal, the concessionaire is required to compensate the landowners according to the ruling. To facilitate the process, the concessionaire may entrust the tasks of land compensation and resettlement of local residents to the relevant public organizations that have experience and expertise in such tasks.[10]

In the case of PPP project implementation, the PPP Act stipulates that Authorization of the Project and the public announcement of the authorization is considered granted when the DEDPI of the PPP project is publicly announced. In addition, a request for Decision of Expropriation may be made within the implementation period of the project as determined by the DEDPI. The PPP Act also allows the concessionaire to entrust the competent authority or the concerned local government with the tasks of land purchase, compensation for loss, resettlement of local residents, and other matters concerning the expropriation and use of land. The PPP Enforcement Decree requires that detailed contents, terms, and fees for entrustment arrangements should be determined in a contract between the concessionaire and the relevant authorities.

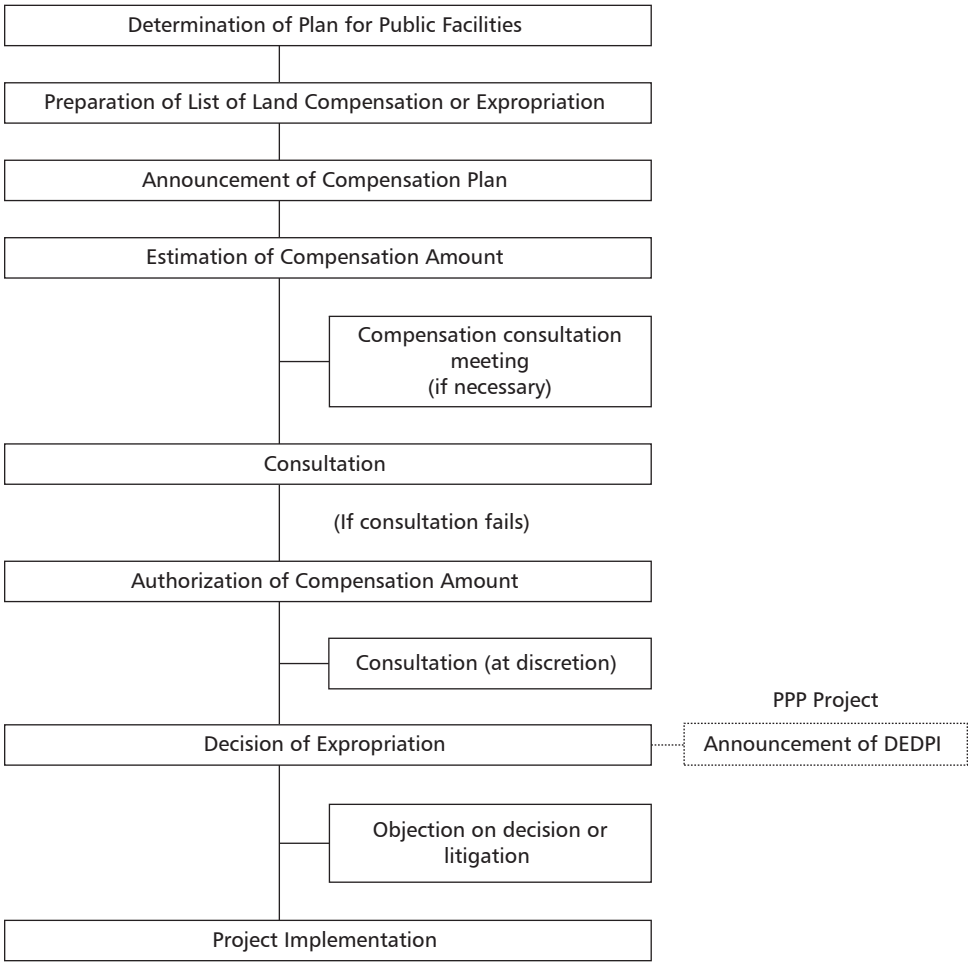
Generally, it is inefficient for the concessionaire to acquire land in its own name and then transfer ownership to the competent authority afterwards; it is often more effective for the competent authority to acquire land directly in the initial stage. In addition, it is difficult for the concessionaire to conduct the expropriation process. It entails a lengthy process involving consultations with key stakeholders such as local residents, and related authorities. Therefore, in practice, competent authorities often carry out land purchases, compensation, and related tasks in place of concessionaires for most PPP projects.

In the case of land belonging to the national or local government located in an area designated for a PPP project, a concessionaire consults with the related administrative agency about the use of land. Government-held land cannot be sold for purposes other than for the PPP project after the date of RFP announcement.

Notwithstanding the related provisions of the State Properties Act and the Local Finance Act, national or public property may be sold to the concessionaire through a negotiated contract. In addition, the competent authority may allow the concessionaire to use and benefit from national or public property without charge, from the date of public notice of the DEDPI until the date of confirmation of construction completion. In the case of revertible facilities constructed under BTO, BTL, or BOT schemes, the national or public property may be used without charge until the end of the concession period. Furthermore, where necessary, the competent authority may

[10] These organizations include local governments, the Korea Land Corporation, the Korea National Housing Corporation, the Korea Expressway Corporation, the Korea Water Resources Corporation, the Korea Rural Community and Agriculture Corporation, and local public corporations.

Figure 2-1 Land Acquisition Process for Public Facilities



DEDPI = Detailed Engineering and Design Plan for Implementation, PPP = public–private enterprise.

Source: Ministry of Construction and Transport (2003). Manual on the Land Acquisition Act for Public Works and Compensation. Seoul.

purchase land located in an area designated for a PPP project and let the concessionaire use the land and benefit from it free of charge from the date of the public notice of the DEDPI until the date of confirmation of construction completion. In the case of revertible facilities, use of land for free may apply until the end of concession period.

In many PPP projects, the entire or part of the land acquisition costs are compensated by the competent authority; the exception is for a few highly profitable projects.

Financial and Tax Incentives

To vitalize the infrastructure markets for PPP projects, the government promulgates various kinds of policies that can facilitate infrastructure financing. More specifically, the government provides (i) construction subsidies, (ii) compensation for base

Figure 2-2 Financial and Tax Incentives for Public–Private Partnership Projects

Types	Construction Period	Operating Period
Subsidy	(1) Construction subsidy	(2) Compensation for base (raw) cost
Guarantee system	(3) Infrastructure credit guarantee via Infrastructure Credit Guarantee Fund	
Tax incentives	(4) Special taxation, corporate tax, local tax, exception from charge	
Early termination	(5) Guidelines for early termination	

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

(raw) cost, (iii) infrastructure credit guarantees via the ICGF, (iv) tax incentives, and (v) guidelines for early termination payment (Figure 2-2).

Construction Subsidy

According to the PPP Act, the government may grant a construction subsidy to the concessionaire, if it is required to maintain the user fee at an affordable level (Table 2-3). The timing of the subsidy is determined in the course of the concession agreement and depends on the equity investment plan of the concessionaire. The subsidy is distributed annually or quarterly and cannot be concentrated in a certain year. The timing of the distribution reflects the completion level of the project and the schedule and scope of equity investment.

The amount of subsidy is determined in each individual concession agreement. When notifying about a project, the government first discloses an approximate ratio of the construction cost that it is willing to subsidize. The exact ratio of subsidy to construction cost is determined through consultation and is stipulated in the concession agreement. As a result, each project ends up with a different amount of subsidy. Table 2-4 shows the government's internal guidelines for negotiating a construction subsidy.

If the ratio of subsidy to construction cost is stipulated by the PPP Act or PPP Enforcement Guidelines, that ratio is included in the government's public notification. If not, the ratio is not included. The government has set a subsidy guideline for road projects of between 20% and 30% of the total project cost. It has set a subsidy guideline for railway projects of up to 50% of total project cost. The ratio of subsidy to construction cost for environmental projects is stipulated by law and, therefore, included in the government's public notification.[11]

[11] The ratios for the Busan–Gimhae Light Rail Pilot Project and Seoul Hanam Light Rail Pilot Project were specified in the government public disclosure as up to 40% of total project cost and up to 50% of the central government subsidy.

Table 2-3 Financial-Support Related Articles in Public–Private Partnership Act

Law and Regulations	Contents
Act	**[Article 53 (Financial Support)]** If it is necessary for the efficient implementation of projects of Revertible Facilities, the State or a local government may grant a subsidy or extend a long-term loan to the Concessionaire, only where prescribed by the Enforcement Decree.
Enforcement Decree	**[Article 37 (Financial Support)]** ① In the event falling under any of the following subparagraphs, the State or local governments may grant any subsidy or long-term loan to the Concessionaire within the scope of the budget after deliberation of the Committee pursuant to the provisions of Article 53 of the Act. However, the deliberation of the Committee shall not be required where the subsidy is granted from the local government's budget or a project for which the Competent Authority is the local government [and] is granted the State subsidy in the amount less than 30 billion won: <Amended by Enforcement Decree No. 17093, Dec. 30, 2000, Mar. 8, 2005> (i) Where it is inevitable to prevent dissolution of the corporation; (ii) Where it is inevitable to maintain the user fees at an appropriate level; (iii) Where inducement of private capital is difficult due to low profitability of the project as a result of a considerable expenditure disbursed to compensate for the use of the land; (iv) Where the actual revenue during operation (referring to the amount obtained by multiplying the user fees by the volume of the facility use) falls considerably short of the estimated operational revenue provided in the Concession Agreement and the normal operation of the facility is difficult; (v) Where a PPP Project contains a facility which has low profitability but, if implemented as a part of the entire project, can considerably reduce the construction period or the construction cost of the entire project, and such PPP Project is difficult to be actively implemented should the said facility not be granted the subsidy or a long-term loan in advance; and (vi) Where the losses occur due to the excessive exchange rate fluctuation with respect to the foreign currency denominated loans which have financed the construction cost. ② In granting a subsidy under the provisions of subparagraph 5 of paragraph (1) above, the State or a local government shall calculate the amount required for the implementation of the project by applying *mutatis mutandis* the method of determining the estimated price and the method of adjusting the contract price under the provisions of Chapters II and V of the Enforcement Decree of the Act on Contracts to Which the State is a Party, or Chapter VII of the Enforcement Decree of the Local Finance Act, and shall grant the subsidy within the scope of the amount calculated as aforesaid. <Amended, Mar. 8, 2005>

Source: Act on Private Participation in Infrastructure. Republic of Korea.

Table 2-4 Internal Guideline for Negotiating a Construction Subsidy
(% of total construction cost)

Type	Negotiation Guideline
1. Roads	25–30
2. Ports	
Container terminal	30
General cargo	40
3. Railways	50

Notes:
1. Many port projects have attracted private participation even without fiscal commitment to construction cost. Recent support ratios have averaged 20%.
2. Container terminal refers to facilities that specialize in containers.
3. General cargo is used to refer to freight such as wheat, iron ore, coal, and crude oil that is not packaged and transported in bulk. Terminals that mainly process such freight are referred to as general cargo.

Source: Internal data from the Public and Private Infrastructure Investment Management Center.

Generally speaking, national BTO projects are eligible for a larger subsidy than local projects both because the project costs are higher and the ratio of subsidy to project cost is set higher.

Minimum Revenue Guarantee and Redemption of Excess Revenue

In addition to the construction subsidy, the government provided an operational revenue subsidy through the MRG and redemption agreement, up until the revision of the PPP Basic Plan in October 2009. Basically, the MRG system is a method for private participants and the government to share the revenue forecast risk. The higher the MRG level (or the narrower the guarantee and redemption band), the more the risk is transferred to the government from private participants. The MRG and redemption agreement have a two-part structure. In the agreement, upper and lower revenue limits are set. If the operational revenue falls short of the lower limit, the government makes up the difference between the lower limit and the actual revenue. If, on the other hand, the revenue exceeds the upper limit, the government redeems the difference—which means that it receives the excess—between the upper limit and the actual revenue.

For projects initiated from 1995 to 2003, the government guaranteed 90% the projected revenue set in the concession agreement for a period of 20 years, and for projects initiated from 2004 to 2005, 70%–90% of the projected revenue was guaranteed for 15 years. With the system revised in 2006, the government guaranteed 65%–75% of the projected revenue for 10 years only for solicited projects (Table 2-5). Solicited projects are projects that competent authorities determine are needed for the public benefit, whereas unsolicited projects are proposed by private companies and reviewed by competent authorities before being designated as PPP projects.

For the MRG program, which was repealed in 2009, private participants were supposed to include the MRG condition that they wanted in their project proposals. The proposed MRG condition was one of the important evaluation criteria. As the competition in PPP projects increased, more projects were being pursued without MRG clauses. Table 2-5 shows an example of MRG clauses in a concession agreement.

Table 2-5 Coverage—Minimum Revenue Guarantee and Redemption of Excess Revenue (% of projected revenue in concession agreement)

		1995–2003	2004–2005			2006		2009
Guarantee Period (years)		1–20	1–5	6–10	11–15	1–5	6–10	None[b]
Solicited Project	Guarantee	90	90	80	70	75	65	
	Redemption	110	110	120	130	125	135	
Unsolicited Project	Guarantee	80	80	70	60	None[a]		
	Redemption	120	120	130	140			
Condition		–	MRG is nullified for projects that earn less than 50% of projected revenue.					

MRG = minimum revenue guarantee.

[a] Program ended in 2006.
[b] Program ended in 2009.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Each competent authority was responsible for calculating MRG payments or redemption amounts, securing financial resources to cover MRG payments, and paying to or collecting from the project company. The MRG payments came from the competent authority's PPP project budget. The authority needed to consult with the MOSF to secure the necessary funds. The data necessary for calculating the MRG payment or redemption amount were to be directly reviewed by the competent authority or PIMAC (when requested) before consulting with the project company. For local projects, the MRG payment came from the local government's budget.

New Risk-Sharing Structure Replacing the Minimum Revenue Guarantee Payment

The credit crunch that hit the global financial market in 2008 has had an adverse impact on the PPP market in the Republic of Korea. The government has failed to reach financial closure on a number of pipeline projects, and there has been a decline in initiation of new PPP projects.

Box 2-1 Example of Minimum Revenue Guarantee Clauses in Concession Agreement

[Case] XX Project

Article 2 (Definition and Interpretation)

"Guaranteed Base Fare Revenue" means 90% of the Projected Fare Revenue in a given Operating Year as specified in Appendix (Projected Fare Revenue).

Article 26 (Fare Revenue and Fare Revenue Collection)

If the Actual Fare Revenue in any Operating Year is less than the Guaranteed Base Fare Revenue the Government will pay the shortfall to the Concessionaire. If the Actual Fare Revenue in any Operating Year is greater than the Collection Base Fare Revenue, the Government shall be entitled to collect the surplus Fare Revenue from the Concessionaire. The Guaranteed Base Fare Revenue and Collection Base Fare Revenue in any Operating Year shall be calculated based on the Projected Fare Revenue.

Source: XX Project Concession Agreement 2002.

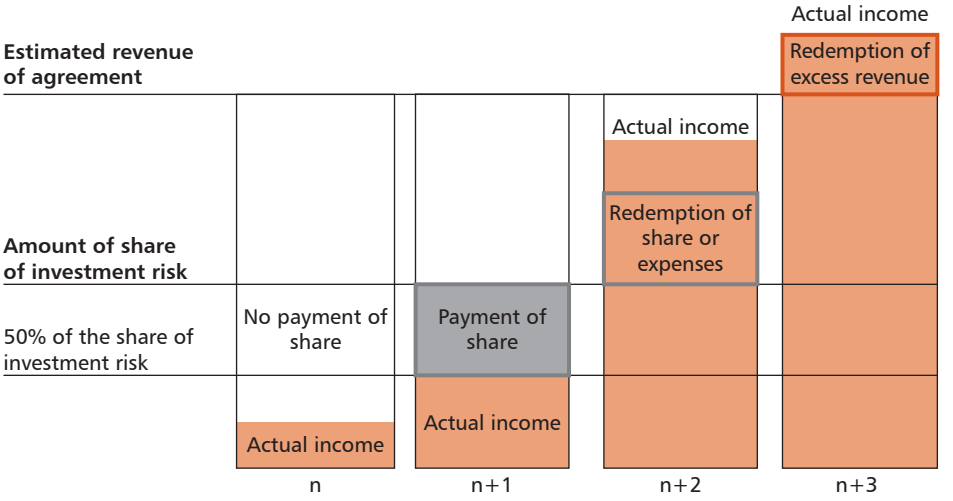
In response, government support measures to mitigate the impact were introduced in August 2009, with a subsequent revision in the Basic Plan in October 2009. To improve project structure, a new risk-sharing structure was developed, under which the government shares investment risk with the private company by compensating the base (raw) cost of the project, calculated as the sum of private investment cost and the interest rate of government bonds. Projects covered by the new structure are government-solicited projects with significant public benefits. The MRG payment provided support for private participant's minimum revenue as projected in the concession agreement; the newly adopted policy compensates for the private participant's base cost. While the former encouraged private participation but caused moral hazard because of the unreasonably low risks to the private participant, the latter decreases the investment risk for private participants and enhances their motivation to make profit. Concurrent with the introduction of the new risk-sharing structure, the MRG system was ended.

In the new risk-sharing structure, the government assumes a portion of investment risk. This risk is limited to what the government's costs would have been in the case of a public-financed project. The government payment is made for the amount of shortfall in the actual operational revenue compared to the share of investment risks by the government.[12] When the actual operational revenue exceeds the share of investment risks, government subsidies are redeemed on the basis of and within the limit of the amount previously paid. On the part of the private participant, subsidies are provided only when the actual operational revenue surpasses 50% of investment risk. Figure 2-3 shows the mechanism under which this structure operates.

Figure 2-3 Mechanism of Risk-Sharing Structure

$$\text{Share of investment risk} = \text{private investment cost}^{a} \times \frac{\text{Interest rate of government bonds}^{b}}{1-(1+\text{interest rate of govt bonds})^{-\text{operation perio}}}$$

[a]Private investment cost = total private investment cost – construction loan interest
[b]Average interest rate of 5-year government bond during construction period



n = operational period in concession agreement.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

[12] Share of investment risks is the amount of operational revenue that guarantees the internal rate of return comparable to the government bond's rate of return on the private sector's capital.

Infrastructure Credit Guarantee Fund

Since 1994, the Infrastructure Credit Guarantee Fund (ICGF) has provided credit guarantees to concessionaires who want to obtain loans from financial institutions for PPP projects. According to Article 30 of the PPP Act, the ICGF is managed by the Korea Credit Guarantee Fund. The ICGF consists of annual government subsidies, guarantee fees, and investment returns (Figure 2-3). When the project guaranteed by the ICGF defaults, the ICGF subrogates on behalf of the project company. Additional government contribution can be granted if the funds are insufficient.

The limit of the credit guarantee per concessionaire is W100 billion, but in cases where the director of the management institution considers it necessary, the limit may be raised to W200 billion. The guarantee fee will have a maximum annual fee rate of 1.5%. Table 2-6 below lists and describes the types of guarantees.

Table 2-6 Types of Infrastructure Credit Guarantee Fund Guarantees

Types	Contents	Guarantee Rate (%)
Facility fund guarantee	Guarantees against concessionaire's construction fund debt	0.3–1.3[a]
Government subsidy guarantee	A ceiling on the guarantee is established in preparation for concessionaire's operational fund shortage resulting from delayed subsidy payment.	0.3
Refinancing guarantee	Guarantee support on refinancing where the current high-interest loan is changed to a new interest loan or infrastructure bond	0.3–1.3[a]
Operating revenue guarantee	A ceiling on the guarantee is established in preparation for concessionaire's operational fund shortage resulting from a reduced operational revenue guarantee.	0.5
Infrastructure bond guarantee	Guarantee for infrastructure bond issued to procure funds necessary for concessionaire in project implementation	0.3–1.3[a]

[a] The guarantee rate is applied to the degree of risks involved in the guarantee and the corporate credit rating.

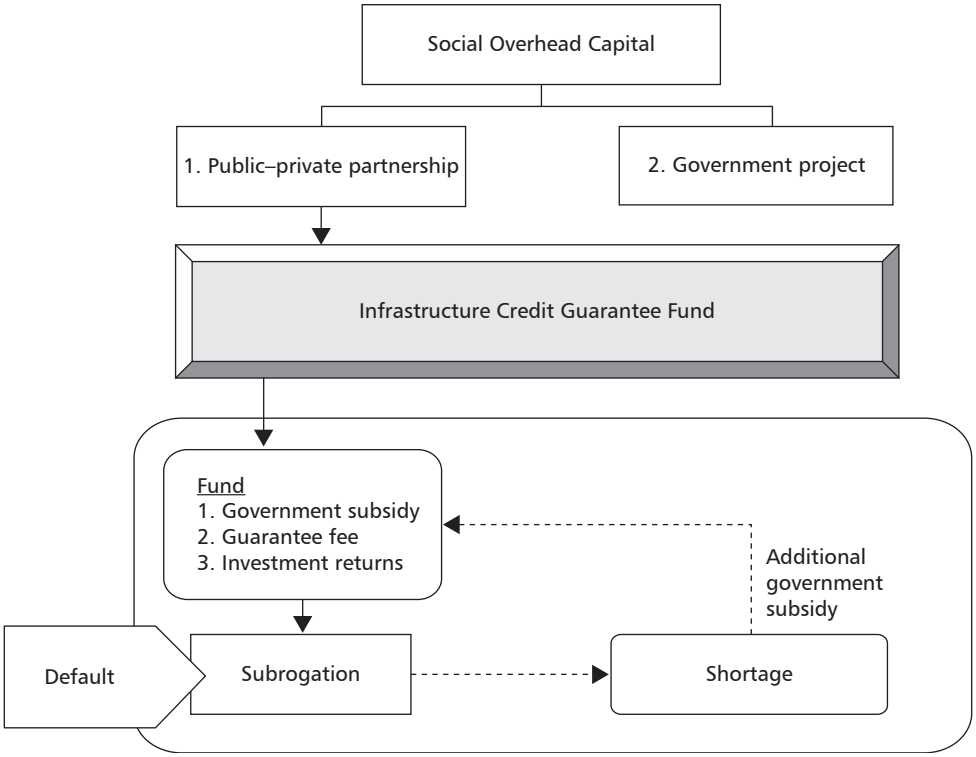
Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Tax Incentives

To facilitate infrastructure financing, the government provides tax incentives that are stipulated in the PPP Act. Details of the tax incentives are also included in the PPP Basic Plan in four categories: (i) special taxation, (ii) corporate tax, (iii) local tax, and (iv) exceptions from charges.

> **PPP Act Article 57 (Reduction and Exemption of Tax):** The State or local governments may reduce or exempt the taxes to promote private investment under the conditions as prescribed by the Restriction of Special Taxation Act and the Local Tax Act.

Figure 2-4 Operating Process of the Infrastructure Credit Guarantee Fund



Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Special taxation. The PPP Act directs the government to enact special taxation for (i) infrastructure bond, (ii) value-added tax, (iii) foreign investment zone, and (iv) infrastructure fund. A separate taxation rate of 14% is applied to the interest revenue from infrastructure bonds. A 0% tax rate is applied for the value-added tax for infrastructure facilities or construction services. Reduction of and exemption from taxes, including corporate tax, income tax, acquisition tax, registration tax, and property tax, are applied to foreign investment in the foreign investment zone. For the dividend income distributed for the infrastructure fund, a 5% tax rate is applied to the dividend income from the equity investment portion up to W300 million and a 14% tax rate is applied to the dividend income from the equity investment portion exceeding W300 million.

Corporate tax. Table 2-8 shows the corporate tax for PPP projects under the ICGF, a way of calculating earnings when used to grant subsidies for the concessionaire, and taxes on land for PPP projects.

Local tax. Table 2-9 shows local tax exemptions for PPP projects, which include an exception for three times the registration tax within the capital region and an exemption from acquisition and registration tax.[13]

[13] The capital region includes the city of Seoul and Kyonggi Province.

Table 2-7 Special Taxation for Public–Private Partnership Projects

Type	Contents
Infrastructure Bond	The concessionaire and other parties may issue an infrastructure bond for implementing PPP projects. A separate tax rate of 14% is applied to the interest revenue from such bonds with 15 years of maturity or more (such application has been extended through 31 December 2009: Article 29 of the Restriction of Special Taxation Act).
Value-Added Tax	A 0% tax rate is applied for the value-added tax for infrastructure facilities or construction services of such facilities provided to the central or local governments pursuant to Article 4 Subparagraph 1 (build–transfer–operate), Subparagraph 2 (build–transfer–lease) and Subparagraph 3 (build–operate–transfer) of the PPP Act or for construction services with the purpose that the concessionaire under Article 2 Subparagraph 7 intends to operate a project that is charged with the value-added tax (such application has been extended through 31 December 2009: Article 105 Paragraph 1 Subparagraph 3-2 of the Restriction of Special Taxation Act). A 0% tax rate is applied for the value-added tax charged on urban railway construction work provided directly to the concessionaire under Article 2 Subparagraph 7 of the PPP Act (such application has been extended through 31 December 2009: Article 105 Paragraph 1 Subparagraph 3 of the Restriction of Special Taxation Act).
Foreign Investment Zone	Reduction of and exemption from taxes, including corporate tax, income tax, acquisition tax, registration tax, and property tax, are applied to foreign investment of $10 million in newly established private investment facilities in the Foreign Investment Zone (Article 116 Paragraph 2 Subparagraph 3-3(e) of the Restriction of Special Taxation Act).
Infrastructure Fund	For the dividend income distributed for the infrastructure fund, a 5% tax rate is applied to the dividend income from the equity investment portion up to W300 million and a 14% tax rate is applied to the dividend income from the equity investment portion exceeding W300 million (such application has been extended through 31 December 2009; Article 91-4 of the Restriction of Special Taxation Act; Article 129 Paragraph 1 Subparagraph 2 of the Income Tax Act).

Source: Restriction of Special Taxation Act, Income Tax Act, Republic of Korea.

Exceptions from charges. Table 2-10 shows Enforcement Decree provisions for exceptions from charges such as the farmland preservation and afforestation charges.

Buyout Right and Concession Termination

Early Termination Payment

The possibility of compensation on early termination is a critical risk-mitigating factor for private participants. In fact, it enables the project company to fund debts at attractive rates. When the concessionaire cannot maintain the facility for various reasons, it may request the government to terminate the concession agreement and pay the predefined early termination payment. When this happens, the government takes over the right to operate the infrastructure facilities. The method of calculating the amount of payment and reasons for termination are stipulated in the concession agreement.

Table 2-8 Corporate Tax for Public–Private Partnership Projects

Type	Contents	
Infrastructure Credit Guarantee Fund (ICGF)	The bad debt allowance for redeemable liabilities of the ICGF pursuant to the PPP Act is categorized as an expense (Article 63 of the Enforcement Decree of the Corporate Tax Act). When the ICGF accepts the bad debt allowance for redeemable liabilities as an expense, the amount is included as an expense in the process of calculating earnings for the year within the range of 1/100 of the remaining amount of the credit guarantee as of the end of the business year (Article 63 Paragraph 1 Subparagraph 3 and Paragraph 2 of the Enforcement Decree of the Corporate Tax Act).	
Way of Calculating Earnings	When used to grant subsidy	When a domestic corporation uses granted subsidy for the purpose of acquisition or reform of business assets with an aim to carry out PPP projects, the amount pursuant to such use is included as expense in the process of calculating earnings of the year (Article 64 Paragraph 1 and Paragraph 6 Subparagraph 3 of the Enforcement Decree of the Corporate Tax Act).
	For concessionaire	When the concessionaire distributes as dividend 90% or more of the distributable income by meeting the terms of a nominal investment company as stipulated under Article 51-2 of the Corporate Tax Act (the equity capital of the concessionaire corporation for the projects other than build–transfer–lease projects shall be W5 billion or more and the equity capital of the concessionaire corporation for the BTL projects shall be W1 billion or more), that amount is deducted when calculating earnings (Article 51-2 of the Corporate Tax Act; Article 86-2 Paragraph 4 Subparagraph 1 of the Enforcement Decree of the Corporate Tax Act).
Taxes on Land	Land developed for the implementation of PPP projects is exempted from additional taxation of capital gains tax and corporate tax (Article 55-2 Paragraph 1 Subparagraph 3 and Paragraph 2 Subparagraph 4(c) of the Corporate Tax Act; Article 92 Paragraph 1 Subparagraph 3 of the Enforcement Decree of the Corporate Tax Act).	

Source: Corporate Tax Act, Republic of Korea.

Procedures for Early Termination

As shown in Figure 2-5, the PPP project company or the special purpose company (SPC) can ask the central or local government to buy out the project if the construction, management, or operation of the facility becomes impossible due to certain reasons (default by a concessionaire or the government, political force majeure, or nonpolitical force majeure).

Default by concessionaire: Table 2-12 shows provisions of a concession agreement detailing actions by the concessionaire that would place it in default. Actions by the concessionaire that would lead to default include faulty construction, bankruptcy, and breach of contract.

Table 2-9 Local Tax Exemptions in Public–Private Partnership Projects

Type	Contents
Exemption of three times the registration tax	An exception of three times the registration tax applies to newly established corporations incorporated within the capital region (which includes the city of Seoul and Kyonggi Province) for the implementation of a PPP project (Article 138 Paragraph 1 of the Local Tax Act; Article 101 Paragraph 1 Subparagraph 3 of the Enforcement Decree of the Local Tax Act).
Exemption from acquisition and registration tax	Build–operate–transfer projects are exempt from acquisition tax and registration tax on real estate (Article 106 and Article 126 Paragraph 2 of the Local Tax Act).

Source: Local Tax Act, Republic of Korea.

Table 2-10 Exception from Charges for Public–Private Partnership Projects

Type	Contents
Exception from charges	50% of the farmland preservation charge and substitute afforestation charge are exempted for each facility (Article 57 of the Enforcement Decree of the Farmland Act, and Article 24-2 of the Enforcement Decree of the Forest Act).

Source: Farmland Act and Forest Act, Republic of Korea.

Table 2-11 Recognition of Buyout Right

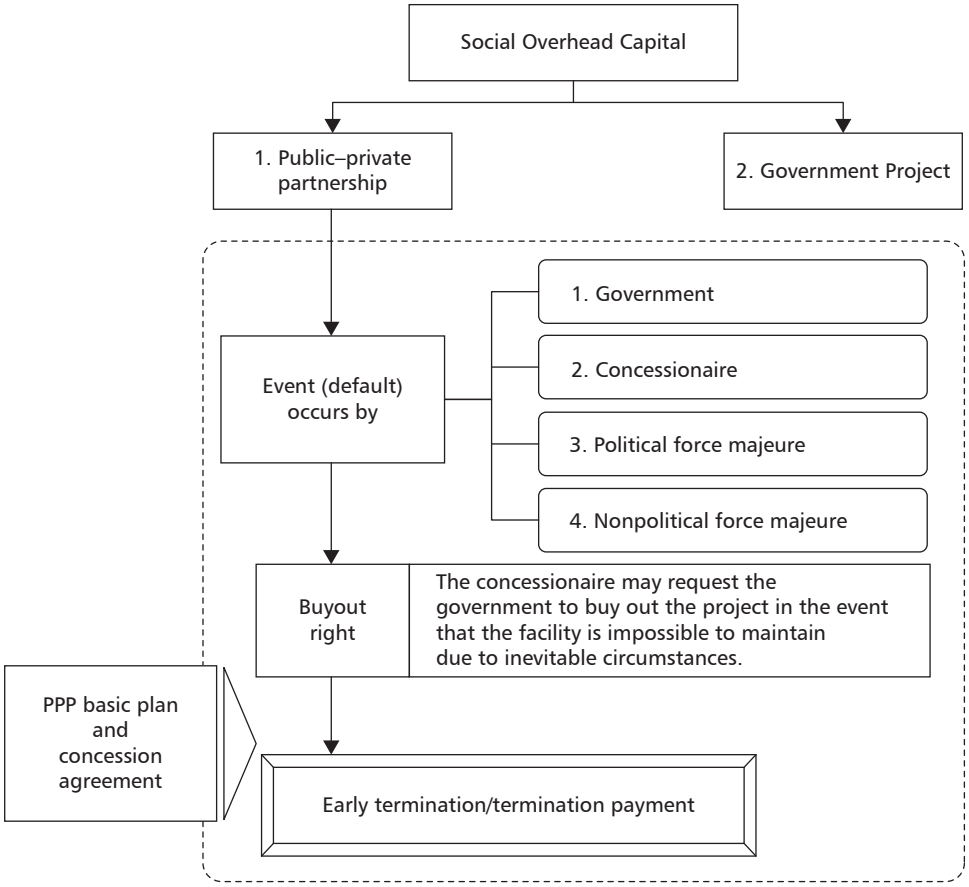
The concessionaire of facilities revertible to the government may request the central or local government to buy out the concerned project (including supplementary projects) in the event that construction or management and operation of the infrastructure facilities is impossible due to inevitable circumstances, such as natural disaster.

Grounds for recognition of buyout right

- When construction is suspended for 6 months or longer or total project cost increases by 50% or more due to natural disasters, war, or other cases of force majeure;
- When operation of the facility is suspended for 6 months or longer, or where the repair cost or reconstruction cost exceeds 50% of the initial total project cost due to natural disasters, war, or other cases of force majeure;
- When the government does not perform its duties in the absence of justifiable cause as determined in the concession agreement for a year or longer from the date of receipt of notification of the grounds thereof, or when the construction or operation of the facility is delayed or suspended for 6 months or longer as a result; or
- When a cause as determined by the concession agreement occurs and the competent authority determines that it is reasonable to recognize the buyout right of the concessionaire.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Figure 2-5 Buyout Right and Early Termination for Public–Private Partnership Projects



Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Default by government. Table 2-13 shows provisions of a concession agreement detailing actions by the government that would place it in default. Actions by the government that would lead to default include failure by the government to meet financial or other obligations, policy changes, or actions that are against the interest of the project company.

Default by force majeure. For a typical concession agreement, the term force majeure means any circumstance or event out of the parties' control that materially affects a party's ability to perform its obligations under the agreement and that cannot be reasonably foreseen and overcome by the party. Table 2-14 provides excerpts of political and nonpolitical force majeure provisions in a typical concession agreement.

Calculation Guidelines for Early Termination Payment

Figure 2-6 describes the evolution of early termination provisions. Initially, the guidelines for calculating termination payments were not specified by law or in the concession agreement. The termination payment system was established in 2000. According to the standards, depending on the cause of termination, the termination

Table 2-12 Excerpts from a Concession Agreement on Concessionaire Actions Leading to Default

Type	Contents
Reasons for default by the concessionaire	(i) subject to any extension of the periods for achievement of Completion of the relevant Phase of the Works specified in Article 13 (Construction) granted pursuant to Articles 32 (Relief Events) and/or 33 (Force Majeure): (a) the Concessionaire has failed to commence the construction of the relevant Phase of the Works within 3 months of the Implementation Plan approval date for that Phase; (b) the Works are in a condition such that the Certificate of Completion cannot be issued on or before the date falling 9 months after the Contractual Completion Date for the relevant Phase has not been achieved such that the cumulative liquidated damages described in Article 13.3 exceed 10% of the Total Project Cost; or (c) failure to enter into the Refinancing Agreements such that a required portion of the Construction Financing Agreements can be refinanced within 30 months of the Phase 2 Completion Date; (ii) other than as provided in Articles 32 (Relief Events) or Article 33 (Force Majeure), the Concessionaire ceases or substantially Ceases to design and/or construct the Works in each case for a Continuous period of 120 days; (iii) other than due to any worker's strike, etc. which is inevitable, the Concessionaire ceases or substantially ceases to operate the Railway for more than 5 consecutive days without reasonable justification; (iv) an order being made or a resolution being passed for the liquidation, bankruptcy, dissolution or appointment of a receiver of the Concessionaire (other than for the purposes of a merger of the Concessionaire on terms approved in advance by the Government in writing); (v) the Concessionaire fails to pay any amount payable by it under this Agreement within 60 days from the due date for payment; (vi) failure by the Concessionaire to submit an Implementation Plan for approval within the time periods (including the extended period) as approved in accordance with Article 8; (vii) any material breach of Law or this Agreement or of administrative measures or orders in accordance with the Private Investment Act and/or its Enforcement Decree by the Concessionaire; or (viii) the Concessionaire fails to input at least 80% of the Committed Investment amount in accordance with the Appendix 2 (Committed Investment Input Schedule) for 4 months or move.

Source: Ministry of Land, Transport and Maritime Affairs. 2001. Concession Agreement of Incheon International Airport Railway. Incheon International Airport Railway Co. Seoul.

payment would be 85%–100% of the project facility value if the project was in the construction phase. If the project was in the operational phase, payment would be 80%–100% of future project net cash flow. In 2004, the calculation method was revised to take into account the present value of future expected revenue and the amount of private investment already made in the project. This new calculation

Table 2-13 Excerpts from a Concession Agreement on Government Actions Leading to Default

Type		Contents
Reasons for default by the government	(i)	The Government fails to pay within 4 (four) months and 15 days from the due date the Capital Subsidy to be paid in accordance with Appendix 3;
	(ii)	The Government fails to pay, when due and payable within the date specified in Article 26.5.6, the other support payments other than Capital Subsidy pursuant to Appendix 3 within 60 days from due date;
	(iii)	Any failure by the Government of its obligations to provide Vacant Possession of any portion of the Site and the related rights of access and egress to the Concessionaire within 4 months of the time periods referred to in Article 7.1 (Vacant Possession);
	(iv)	Any failure by the Government to notify the Concessionaire of its approval or rejection of the relevant Implementation Plan within three months after the time periods for approval specified in Article 8.1;
	(v)	Any failure to issue a Permit within three months of it becoming a Relief Event under 32.1.1(iii), thereby having a material effect on the Project;
	(vi)	Any material breach of any other provision of this Agreement by the Government;
	(vii)	Expropriation or nationalization of all or a material part of the Project assets or shares of the Concessionaire by the Government or a Relevant Authority;
	(viii)	It is or will become unlawful for the Government to perform or comply with one or more of its obligations under this Agreement and such unlawfulness is material, or any such obligation is not, or ceases to be, legal, valid, binding and enforceable; or
	(ix)	Any additional measures required relating to Obstacles on, above and under the ground delays the Work for over 6 months and which is not due to the fault of the Concessionaire provided that the Concessionaire has fulfilled its obligation relating to the Obstacles which the Government requests the Concessionaire to deal with after the approval of the Implementation Plan of Phase 2.

Source: Ministry of Land, Transport and Maritime Affairs. 2001. Concession Agreement of Incheon International Airport Railway. Incheon International Airport Railway Co. Seoul.

method enabled the project company to attract senior debt without a senior debt guarantee. In other words, while eliminating the senior debt guarantee condition, the government set the level of early termination payment high enough so that all unpaid borrowings could be repaid. The revision of the PPP Basic Plan in October 2009 introduced a special case in estimating the payment. A special temporary arrangement to pay back the invested funds when the project agreement is terminated for unavoidable reasons was adopted as follows: When the agreement is terminated during the operational period, the means of depreciation of invested private fund is changed from declining balance method to straight line method. This is expected to bring the effect of increasing capability of raising senior debt by amplifying security solvency of the project. If, on the other hand, the agreement is terminated because of concessionaire's default, subordinated debt and capital should be excluded from

Table 2-14 Excerpts from a Concession Agreement on Force Majeure

Type		Contents
Nonpolitical force majeure	(i)	Acts of God, explosion, fire, or meteorite;
	(ii)	Air crash, failure or stoppage of transport of the major item(s) for the project due to nonpolitical cause;
	(iii)	National or industry-wide strike due to nonpolitical cause;
	(iv)	Drastic deterioration of economic condition, causing failure or Financial Close; or
	(v)	Other events similar to the abovementioned events.
Political force majeure	(vi)	Acts of war (whether declared or undeclared), riot, civil commotion, terrorism, or embargo
	(vii)	Air crash, failure or stoppage of transport of the major item(s) for the project due to political cause;
	(viii)	National or industry-wide strike due to political cause;
	(ix)	Nuclear waste, chemical, or radioactive contamination;
	(x)	The expropriation, confiscation, or nationalization of all or part of the railway by any relevant authority during national emergency, war, or any other reason; or
	(xi)	Other events similar to the abovementioned events

Source: Ministry of Land, Transport and Maritime Affairs. 2001. Concession Agreement of Incheon International Airport Railway. Incheon International Airport Railway Co. Seoul.

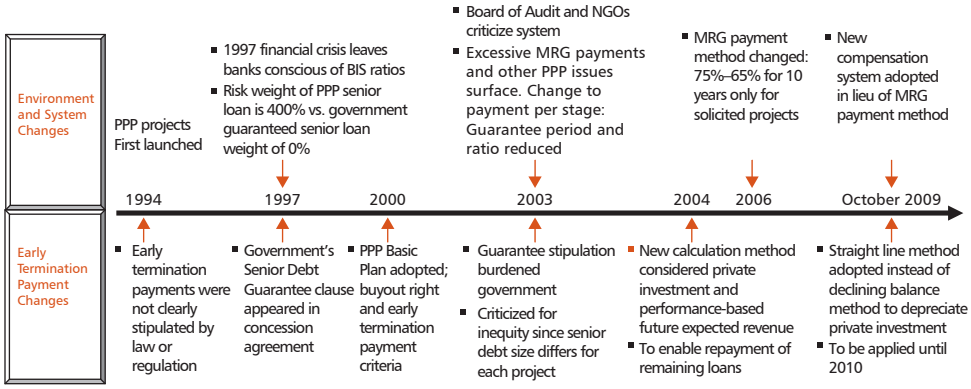
estimation of the amount payable to ensure greater responsibility on the part of the private sector. This measure is applicable to new projects begun in 2009–2010, but it can also be applied to projects for which financing has not yet closed.

Tables 2-15, 2-16, and 2-17 show the guidelines for calculating the early termination payment for BTO and BTL projects. The guidelines indicate that the termination payment is different for the construction period versus the operational period. In the case of a BTO project, the calculation of termination payment during the construction period is based on already incorporated private investment amount and the opportunity cost, if applicable; the termination payment during the operating period is based on the weighted average of depreciated value of the already incorporated private investment amount and the present value of the project (weight varies depending upon the cause of the default). In the case of a BTL project, the calculation of termination payment during the construction period is based on net private investment (private investment cost minus construction period interest) already invested, provided that the compensation amounts are calculated separately, depending on the reason of default. The calculation of termination payment during the operating period is based on the present value of the lease fee over the remaining period of lease term and calculated separately depending on the reason of default.

A Few Cases of Early Termination So Far

Until now, there have been just two early termination cases in the Republic of Korea. One project was terminated due to the public's opinion that it was inappropriate to build a toll road. The government was held liable for this early termination, and the termination payment was paid out in installments over a 3-year period. The other project was terminated due to the cancellation of the main project that this project

Figure 2-6 Changes to Early Termination Provisions for Public–Private Partnership Projects



BIS Ratio = Bank for International Settlements Capital Ratio, MRG = minimum revenue guarantee, NGO = nongovernment organization, PPP = public–private partnership.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Table 2-15 Calculation Guidelines for Early Termination Payment for Build–Transfer–Operate Projects, before October 2009

	Build–Transfer–Operate	
Category	Construction Period	Operating Period
Default by concessionaire	Incorporated private investment amount[a]	Depreciated value of the amount on the left[d]
Nonpolitical force majeure	Incorporated private investment amount × [1 + Standard debt interest rate (A)[b]]	Weighted average[e] of the sum of the depreciated value of the amount on the left plus the future expected profit[f] while considering the remaining operating period.
Political force majeure	Incorporated private investment amount × [1 + (A + B)/2]	Same as above
Default by government	Incorporated private investment amount × [1 + current IRR[c](B)]	Same as above

IRR = internal rate of return.

[a] Construction interest rate is deducted from the total private investment cost.

[b] Add 2% to the annual average amount of distribution rate of a 5-year government bond for every year during the construction period and take its weight average by the ratio of accumulated total private investment fund amount at the end of each year.

[c] The current internal rate of return is calculated by comparing the real rate of consumer price increase to the real internal rate of return during the construction period.

[d] The already invested private investment fund is depreciated by the rate fixed in the concession agreement.

[e] [Remaining depreciation × (1-ratio of remaining operating period)] + [future expected profit × (ratio of remaining operating period)]

[f] The expected profit is the amount discounted by fixed internal rate of return, the flow of expected profit is based on the real price at the time of termination.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Table 2-16 Calculation Guidelines for Early Termination Payment for Build–Transfer–Operate Projects, as of October 2009

Category	Build–Transfer–Operate	
	Construction Period	Operating Period
Default by concessionaire	Incorporated private investment amount[a]	Depreciated value[a] of the already invested private investment fund[b]
Nonpolitical force majeure	Incorporated private investment amount × [1 + Standard debt interest rate (A)[b]]	Weighted average[c] of the sum of the depreciated value of the amount of the above and the future expected profit[d] while considering the remaining operating period[e]
Political force majeure	Incorporated private investment amount × [1 + (A + B)/2]	Same as above
Default by government	Incorporated private investment amount × [1 + current IRR[c](B)]	Same as above

[a] The already invested private investment fund is depreciated by the amount fixed in the concession agreement. In the case of termination by the concessionaire's default, subordinated debt and capital is excluded from estimation of the amount payable. (When the early termination payment is calculated, price fluctuation from the date of construction termination to termination of concession shall not be reflected.)

[b] Construction interest rate is deducted from the total private investment cost.

[c] [Remaining depreciation × (1-ratio of remaining operating period)] + [future expected profit × (ratio of remaining operating period)]

[d] The expected profit is the amount discounted by fixed internal rate of return, the flow of expected profit is based on the real price at the time of termination; applied differently according to reasons for termination as stipulated in the concession agreement.

[e] If the concessionaire holds cash-based assets at the time of termination for reasons such as condition of debt financings, the amount is deducted from termination payment.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

supported. The termination payment amount was determined by negotiations between the project company and the government.

Training and Education Program

Background

PPP is a system by which the government provides infrastructure facilities and decides the level of services through concession agreements with the private sector, which takes a leading role in building and operating those facilities. A PPP has a complicated and difficult project structure, in which the financing factor, i.e., the raising and repaying of funds, is involved and the public and private sectors share risks through a concession agreement based on the concept of prior decision. One of the most important elements in implementing PPP projects is correct perception and wide-ranging knowledge about the various elements—including the PPP system itself, demand forecast, civil engineering, financing, accounting, and laws—on the part of decision makers and working-level officials involved.

Table 2-17 Calculation Guidelines for Early Termination Payment for Build–Transfer–Lease Projects

Category	Build–Transfer–Lease	
	Construction Period	Operating Period
Default by concessionaire	(Private investment cost put in up to the time of termination)–(Equity Capital put in up to the time of termination)	(The present value of lease fee of the remaining period that is discounted by rate of return applied at the time of termination)–(Equity capital put in) = E
Nonpolitical force majeure	[Net private investment put in at the time of termination] × [1 + C]	E+(F–E) × 1/3
Political force majeure	[Net private investment put in at the time of termination] × [1 + (C+ D)/2]	E+(F–E) × 2/3
Default by government	Net private investment put in at the time of termination × [1 + D]	The present value of the lease fee of the remaining period that is discounted by the rate of return applied at the time of termination = F

C = [government bond interest rate] determined in the concession agreement,
D = [government bond interest rate + additional rate] determined in the concession agreement,
E & F = [government bond interest rate + additional rate] applied when calculation lease fee at the time of termination.

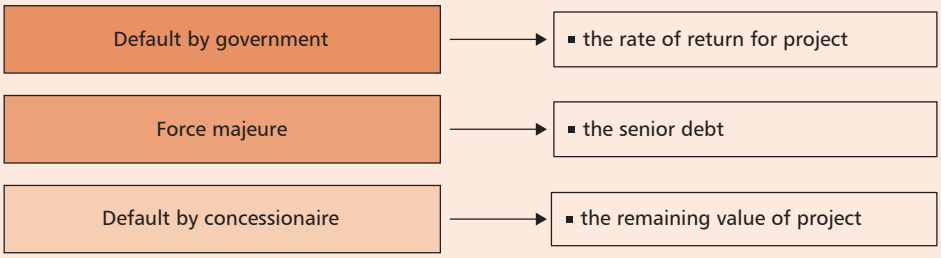
Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Box 2-2 Case Studies of Early Termination Payment

Case of the United Kingdom

In the United Kingdom (UK), if a project is terminated due to governmental action, the termination payment is high enough to provide the agreed rate of return for the already invested private capital. The rationale is that because the early termination was caused by the government, the payment would compensate the private project company for most of the agreed returns. In the case of force majeure, both parties would have to assume a certain level of loss and, therefore, 100% guarantees are forbidden. However, even in force majeure cases, senior debt is still guaranteed (see figure).

Figure: Termination Payment by Events



The greatest difference between systems in the UK and the Republic of Korea is when the project company is responsible for the termination. While the Government of the Republic of Korea would still compensate for the depreciated balance of the private investment, the Government of the United Kingdom pays the present value of the project based on the present value of the future cash flow regardless of how much has

continued on next page

Box 2-2 *continued*

been invested. If the project was terminated due to the project company's fault, such as bankruptcy, the actual operating revenue would likely be lower than the expected revenue and the project's market value would be probably too low to recover the private investment. The UK system would hold the project company liable for any failure in revenue forecasting if the termination occurred due to the private company's fault.

Case of Australian Partnership Victoria

Australia uses a method similar to the UK. If the government caused the early termination, it would not only guarantee the senior debt in the project but also pay an amount that would compensate the rate of return in the agreement. In the case of force majeure, senior debt is guaranteed. If the termination was brought on by the project company, the payment would be equivalent to the present value of the future cash flow regardless of the amount already invested in the project, which is the same as the UK system. What is noteworthy in the Australian system is how it specifies the deductions to be taken from the termination payment. For example, if the project company was responsible for the termination, any government expense incurred while valuating the ongoing value of the project would be deducted from the payment. This is designed to have the private investor pay for administrative expenses triggered by its fault. The Australian system also specifies by regulation the payment timing, method, and fair value assessment.

Case of the World Bank

The World Bank also guarantees the contracted rate of return to the investor if the World Bank is liable. If the project company is liable for early termination, only the market price based on the present value of the project is guaranteed in principle. However, the World Bank also uses the following five methods to calculate the present value of projects:

Method	Contents
Historical cost	This approach is the traditional accounting method of valuation for the purpose of financial reporting. It takes the cost of the asset when it was purchased and depreciates it over a certain period. As a measure of current value, it can be misleading because it ignores inflation and thus tends to undervalue assets.
Inflation-adjusted historical cost	Historical cost can be adjusted to take inflation into account by increasing book value according to either a measure of the general inflation rate, such as the consumer price index, or a measure more closely related to the assets involved.
Depreciated replacement cost	An alternative is to consider what it would cost to buy the equivalent asset now or, because similarly degraded secondhand assets may not be readily available, what it would cost to replicate the investment now, less an estimate of the asset's depreciation in value since investment. A problem with the historical cost and depreciated replacement cost methods is that they do not consider changes in the value of assets brought about by changes in technology.
Optimized depreciated replacement cost—or modern-equivalent-asset value	This approach is a refinement of depreciated replacement cost. It is the cost of replacing the asset with the cheapest asset that does the same job (the optimal asset). For example, if a new pipe-making material has been put on the market since the pipes in a water concession were laid, the optimized replacement cost is the cost of replacing the pipes using the new, cheaper material. As before, the cost of the new pipe must be depreciated to account for its deterioration.

continued on next page

Box 2-2 *continued*

Method	Contents
	Optimized depreciated replacement cost solves the problem of changing technology, but like its predecessors, it has the effect of compensating concessionaires according to some measure of the cost of investment. Concessionaires could thus be compensated even for making investments that were economically undesirable—that is, investments with benefits that fall short of their costs, even when the costs are as low as possible.
Optimized deprival value—or market value	The method of optimized deprival value attempts to take into account value as well as cost: the optimized deprival value (ODV) is the minimum of the optimized depreciated replacement cost (ODRC) and economic value, where economic value is the maximum of the net present value (NPV) of future earnings and disposal value, and disposal value is the amount the asset could be sold for. All together, this implies that: ODV = min [ODRC, max (NPV of future earnings, disposal value)]. To avoid incentive problems, the estimate of future earnings must be based on an estimated future tariff that is independent of the bids made when the concession is re-awarded. In principle, ODV accounting may generate compensation payments that give concessionaires the right incentives. Determining the ODV of the concessionaire's assets is difficult, however, and requires assessments of technology, the concessionaire's expected cash flows, and its cost of capital. The choice of accounting rule must, of course, take into account the practicality, as well as the theoretical advantages, of the options. In addition, it should be noted that ODRC and ODV subject the concessionaire to certain risks that do not arise with the simpler measures of value. As a result, they may raise the cost of the concessionaire's capital.

Source: J. Luis Guasch. 2004. Granting and Renegotiating Infrastructure Concessions. *WBI Development Studies*. Washington, DC.

The PPP Act mandates that PIMAC provide training and education programs and lays down the regulations on "developing and operating educational programs with respect to the implementation of PPP projects" in Article 23 of the act and Article 20, Clause 8, of its enforcement decrees on the duty of PIMAC. Training and education courses are provided for working-group officials and decision makers in both public and private sectors.

PIMAC is currently providing training and education courses on PPP projects mainly for interested government officials. It conducted 19 domestic training programs—six basic courses, six in-depth courses, and seven occasional courses—between 2006 and 2009. Meanwhile, as the PPP program became increasingly more active in the Republic of Korea, there were moves in a number of foreign countries to study it as their benchmarking model through PIMAC. Recently, PIMAC developed training and education programs on the overall PPP system at the request of government officials in some foreign countries.

Contents of Training and Education Program

Basic courses on build–transfer–operate and build–transfer–lease projects. The most elementary course among the training programs on PPP projects conducted by PIMAC is the PPP basic course, which is offered regularly two or three times a year for working-level government officials responsible for PPP projects. The government's manpower management system is based on rotational assignment, in which civil servants perform a duty for as short as 6 months or as long as 2–3 years before moving to other posts or agencies. While the rotational assignment system has the advantages of preventing corruption and allowing government employees to perform their jobs with a broad view based on diverse work experiences, it has the disadvantage of not developing expertise because of the frequent change of posts. Especially in an area like PPP projects, where it is very important for the officials to acquire a wide range of knowledge in diverse areas as well as accumulate experiences coping with contentious issues, frequent personnel transfers can create difficulties for the working-level officials newly assigned to PPP projects. Therefore, PIMAC conducts BTO and BTL basic courses for newly assigned officials 1–3 times a year and for 1–4 days each time.

The PPP basic course training is aimed at effectively cultivating job-performance capability of decision makers and working-level officials in the competent authorities, helping to implement PPP projects smoothly, and enhancing the trainees' understanding of PPP projects. The courses are mainly composed of basic content about the backgrounds, purposes, overall project structure, financing technique, law issues, project procedures, and concrete examples of BTO and BTL projects. The overall flow of the program starts with the definition of PPP projects and proceeds toward their implementing stages, such as conducting VFM tests, making and announcing RFPs, evaluating project plans, and negotiating the conclusion of a concession agreement; the courses focus on basic matters the officials must know at each stage.

In-depth course on build–transfer–operate and build–transfer–lease projects. BTO and BTL in-depth courses deal with more detailed content than the basic course. They are targeted at working-group officials armed with sufficient basic knowledge about PPP projects. As these in-depth courses are aimed at trainees who have sufficient knowledge about implementation procedures as well as understanding of the basics of PPP projects, they provide in-depth training across all major areas of PPP projects—such as the overall system, demand forecast, cost estimation, law, financing and accounting—for 4–5 days by inviting experts in each field.

The purpose of the in-depth training courses is to give officials opportunities to study major issues in the course of negotiating and concluding concession agreement, grasp major points of contention through class discussions, share the know-how of other agencies in implementing PPP projects, and apply this knowledge in performing their duties. The courses also aim to enhance the trainees' overall understanding of how to analyze project feasibility by offering not only lectures on financial models and the tool of analyzing financial performance but also practice-oriented training. The courses extensively train students about study methods through PPP financial models for the smooth implementation of BTO and BTL projects.

Through these educational courses, trainees can cultivate the ability to find efficient negotiating methods in the stage of project promotion, increase their legal

understanding about concession agreements, and enhance their ability to make the most of financial models. These in-depth courses are now offered 2–4 times a year, as the demand for them has increased amid the growth in the number of officials who have finished basic courses.

A considerable number of trainees who attended in-depth courses are asking for training courses with a particular emphasis on financial or legal issues with concession agreement. Reflecting such requests from working-level officials, PIMAC launched an in-depth financial course in 2008 and has developed training programs focusing on financial issues across PPP projects. Particularly, PIMAC has increased practice-oriented classes on financial models of PPP projects, helped trainees grasp finance-related points of contention through class discussions, and let them share the know-how of other agencies in implementing PPP projects through case presentations.

Occasional training courses. PIMAC has conducted seven occasional training courses, each on a different topic. In September 2006 and February 2007, PIMAC held joint workshops with competent authorities on BTL projects; the workshops introduced the new system of BTL projects and their operation. In August 2007, the center held an InfraInfo database system demonstration to explain how to use the system for officials required to use databases for PPP projects. In addition, the workshop for private sector members of the PRC was held in June 2008 to educate newly appointed members about the PPP project system. The workshop for director general-level officials at local governments was held in April 2009 to enhance overall understanding of PPP projects among high-level local officials, who are decision makers in provincial administrations. Occasional educational programs are developed and offered by PIMAC according to the needs at the time by taking the characteristics of the trainees into account. These programs can be included in regular courses, like the basic or in-depth courses, depending on their outcome.

Result of Training and Education Program

Since 2006, PIMAC has provided a total of 19 training and education courses, including basic courses, in-depth courses, occasional courses, and courses for foreign government officials. The number of trainees increased from 185 in 2006 to 799 in 2009, for an aggregate total of 1,943. Most of the trainees came from the government sector, meaning they were either civil servants or state enterprise employees. Considering the total number of officials responsible for PPP projects among government employees, it could be said that almost all government employees responsible for PPP projects have attended at least one training course provided by PIMAC.

If the domestic training programs are divided into basic and in-depth courses, the number of trainees in basic courses started with 25 in 2006 and peaked at 235 in 2007, the year when the BTL projects were most active, but has declined to 185 in 2008 and 143 in 2009. The number of trainees who finished in-depth courses has been on a steady decline from 160 in 2007 to 143 in 2008 to 114 in 2009. Also, the number of trainees in in-depth courses fell by 20% in 2009 to 114, which seemed to be attributable to the fact that PIMAC provided its BTO and BTL financial in-depth courses only once, at the same place.

Considering the total number of trainees who finished the educational courses provided by PIMAC and the survey on trainee satisfaction, it could be said that the training courses for effective and efficient implementation of PPP projects have considerably contributed to the promotion of PPP projects, both directly and indirectly.

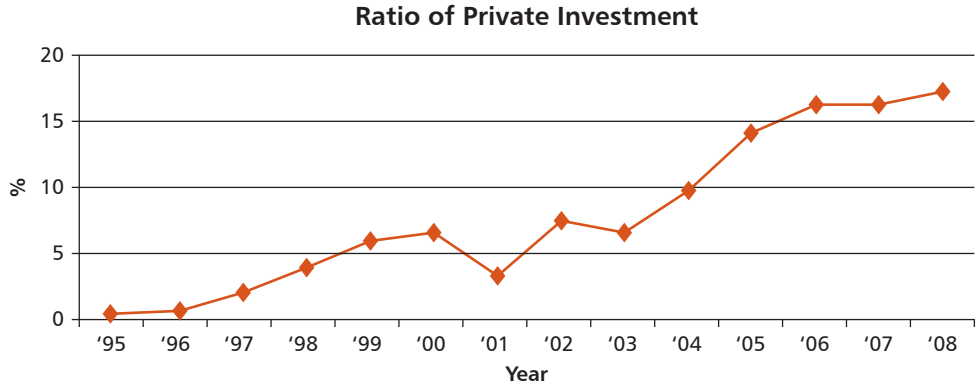
Trends and Current Status of Public–Private Partnerships

Build–Transfer–Operate Projects

General Trend

In 1995 when public–private partnership (PPP) projects were first introduced in the Republic of Korea, W400 million was invested in PPP projects (mostly build–transfer–operate [BTO] projects), which was just 0.5% of total social overhead capital (SOC) investment. However, from 1995 to late 2008, W3.7 trillion was invested in PPP and/or BTO projects, taking up about 18.4% of total SOC investment. Figure 3-1 displays the increase in the proportion of PPP investment to total SOC investment during the past 10 years.

Figure 3-1 Percentage of Annual Public–Private Partnership/ Build–Transfer–Operate Investment to Public Investment in Social Overhead Capital (%)



Source: Internal data (1995–2008) from the Ministry of Strategy and Finance, Republic of Korea.

As of September 2009, 203 BTO projects were in various stages: 110 completed, 44 under construction, 19 in preparation for construction, 24 under negotiation, and 6 at the request for proposal (RFP) preparation stage. Among those projects, concessionaires for 173 projects have been chosen and their concession agreements signed. The 203 projects by sectors are: 61 roads, 11 railways, 17 port facilities, 64 environmental facilities, 5 logistics projects, and 45 other construction projects, including parking lots and cultural and tourism projects. Of the 203 projects, 86 are national projects and 117 are local projects.

Investment Amount and Fiscal Subsidy

The 203 BTO projects announced as of September 2009 involved a total investment cost of W66.1 trillion. By sector (Figure 3-2), there are 61 road construction projects involving a total investment cost of W38.6 trillion, taking up 58.3% of the total investment cost. There are 11 railway projects with total investment cost of

Table 3-1 Number of Build–Transfer–Operate Projects by Sector and Implementation Phase, as of September 2009

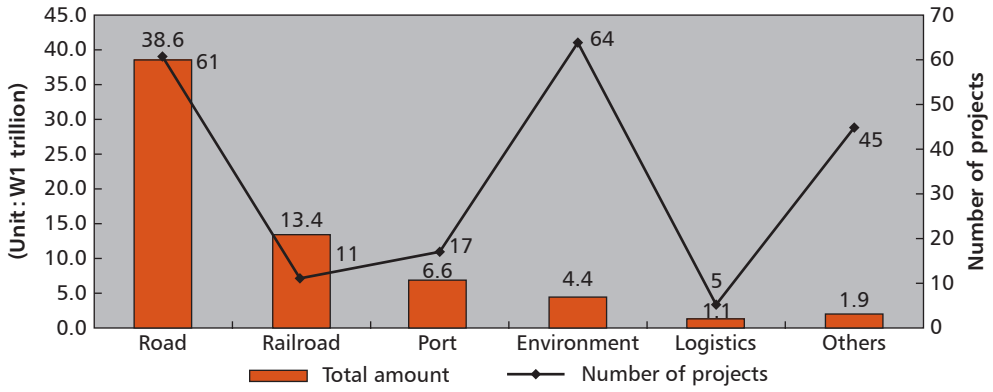
Phase		Road	Rail	Port	Environment	Logistics	Airport, parking, etc.	Sub-total	Total
Completed	Nat'l	11	1	8	1	–	7	29	110
	Local	11	–	–	42	–	28	81	
Under construction	Nat'l	11	5	7	5	4	–	32	44
	Local	1	–	–	8	–	3	12	
Preparing construction	Nat'l	6	1	1	1	1	3	10	19
	Local	4	–	–	2	–	–	9	
Negotiating	Nat'l	8	4	1	2	–	–	15	24
	Local	5	–	–	2	–	2	9	
Inviting participants	Nat'l	–	–	–	–	–	–	–	6
	Local	4	–	–	–	–	2	6	
Total		61	11	17	64	5	45		203

Nat'l = national.

Note: Excluded are 22 projects that were discontinued or converted to fiscal projects.

Source: Internal data from the Ministry of Strategy and Finance, Republic of Korea.

Figure 3-2 Investment and Number of Build–Transfer–Operate Projects by Sector (W trillion)

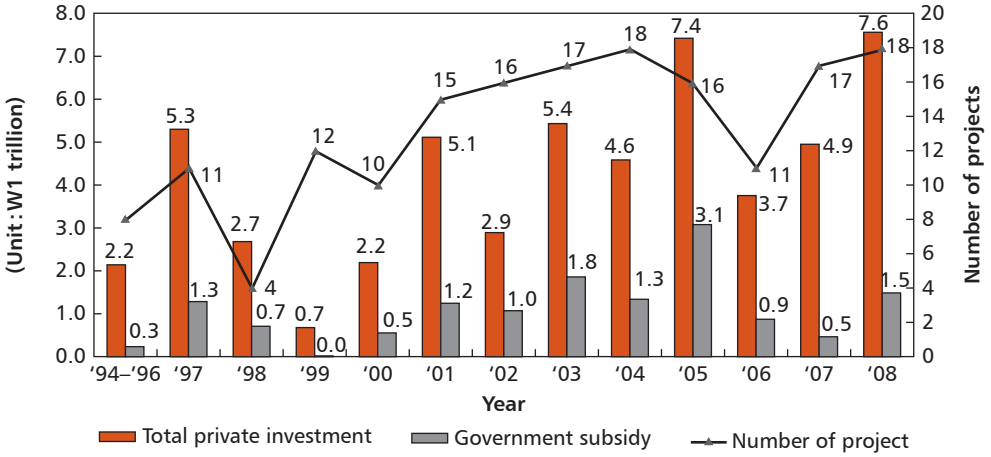


Source: Internal data (as of September 2009) from the Ministry of Strategy and Finance, Republic of Korea.

W13.4 trillion, which is 20.3% of the total, and 17 port projects that require an investment of W6.6 trillion, taking up 10% of the total investment cost.

There are 64 environment projects with an investment cost of W4.4 trillion, making up about 6.7% of the total investment cost. There are also 5 projects in logistics with an investment cost of W1.1 trillion, which is just 1.7% of the total investment cost. Additionally, there are 45 projects in various other sectors, including airport, parking lot, and tourism projects, with an investment cost of W1.9 trillion, which is 2.9% of the total investment cost.

Figure 3-3 Private Investment Cost and Government Subsidy of Signed Build–Transfer–Operate Projects By Year (W trillion)



Note: The amounts are not the actual investment in the corresponding year but are the sum of total investment costs of signed agreements in each year.

Source: Internal data (1994–2008) from the Ministry of Strategy and Finance, Republic of Korea.

Of the 203 projects, 173 are signed concession agreements (Figure 3-3). Of the total investment cost of W54.5 trillion, approximately W40.4 trillion is private investment cost, while W14.1 trillion is government subsidy.

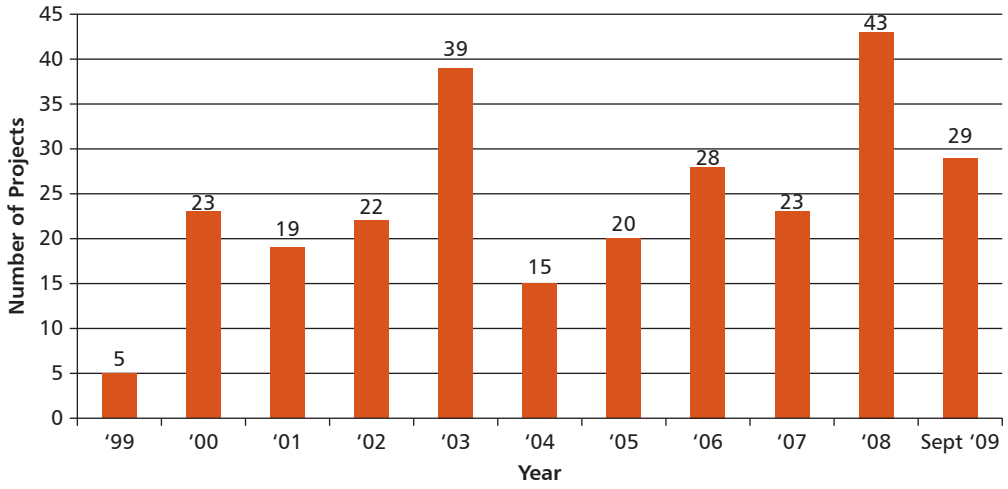
In 1997, concession agreements on private investments of W5.3 trillion were signed for 11 projects with total government subsidy of W1.3 trillion. The total investment decreased in 1998 and 1990. In 2000, investment gradually started to grow, with the highest levels reached in 2005 and 2008. In 2005, concession agreements for 16 projects with private investment of W7.4 trillion and government subsidy of W3.1 trillion were signed, while, in 2008, concession agreements for 17 projects with private investment of W7.5 trillion and government subsidy of W1.5 trillion were signed.

Solicited versus Unsolicited Projects

In the Republic of Korea, PPP procurement is initiated as either a solicited or unsolicited project. A solicited project is one where the competent authority identifies a PPP project and announces an RFP. For an unsolicited project, a private company submits a project proposal, and then the competent authority examines and designates it as a PPP project. As of September 2009, 266 unsolicited projects have been proposed as PPP projects. In 1999, the first year unsolicited proposals were allowed by the PPP Act, five unsolicited projects were proposed as BTO projects. In 2003, 39 unsolicited projects were proposed; in 2005–2007, the number of unsolicited projects fell considerably to 20–28 per year (Figure 3-4).

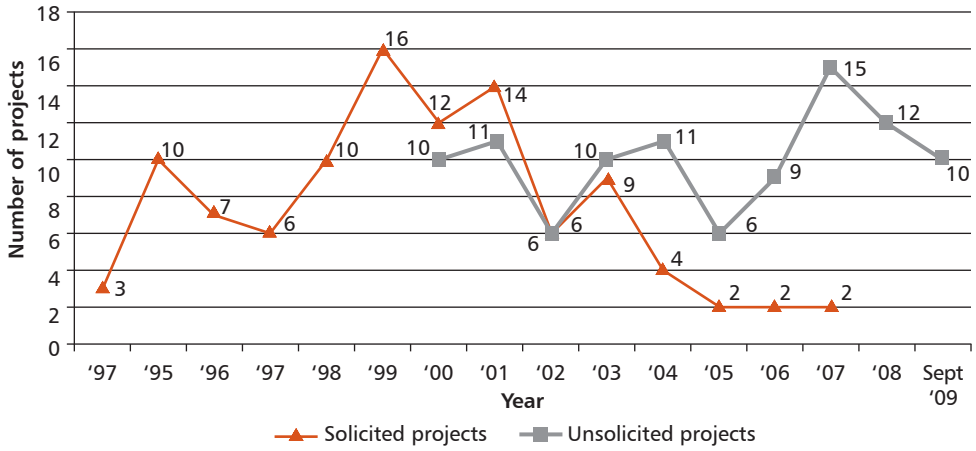
Among the 266 unsolicited BTO projects that were proposed as of September 2009, only 100 were adopted and notified. Figure 3-5 shows the number of solicited and unsolicited BTO projects by year. In 2000, 10 unsolicited projects were announced, while 6 projects were announced in 2002. The number dropped again to 6 in 2005 then started to increase gradually to 15 projects in 2007.

Figure 3-4 Number of Unsolicited Build–Transfer–Operate Projects Proposed By Year



Source: Internal data (1999–2009) from PIMAC, KDI.

Figure 3-5 Number of Solicited and Unsolicited Build–Transfer–Operate Projects Approved By Year



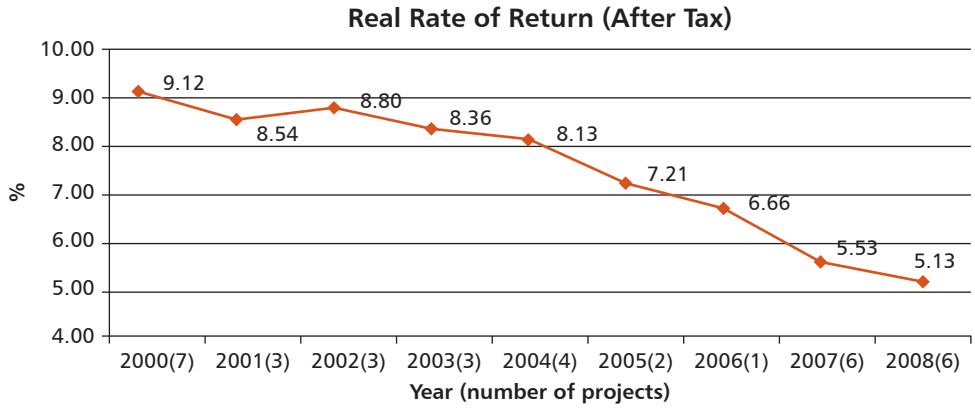
Source: Internal data (1994–2008) from the Ministry of Strategy and Finance, Republic of Korea.

In the case of solicited projects, since 1994, 103 projects have been proposed by the central and local governments. The number of solicited projects gradually increased—from 3 in 1994 to 10 in 1995 and 16 in 1999. Then, the number declined sharply: 6 in 2002, 4 in 2004, and 2 in 2007. Compared annually (Figure 3-5), it can be seen that the number of unsolicited projects surpassed that of solicited projects in 2003. In other words, from 2003, there have been considerably more unsolicited than solicited BTO projects.

Rate of Return

Rate of return for BTO projects is defined by the internal rate of return (IRR), which is the discount rate that makes the present value of cash inflow equal to outflow (net present

Figure 3-6 Rate of Return for Signed Build–Transfer–Operate Road Construction Projects (%)



Source: Internal data (2000–2008) from PIMAC, KDI.

value = 0). Rate of return of the project is determined through negotiations between the concessionaire and the government or by competition among project proponents.

Among the signed BTO projects, PIMAC surveyed the annual rate of return in real terms for the projects signed after the PPP Act in 1998. The rate of return for 2000 was 9.12%; it gradually declined to 8.13% in 2004, 6.66% in 2006, and fell sharply to 5.13% in 2008.

Minimum Revenue Guarantee

For promoting BTO projects, the government provided subsidies during the construction phase and also subsidized operation through the minimum revenue guarantee (MRG) program until 2006, when the MRG system was ended only for unsolicited projects. Different from other fiscal supports, such as the fixed amount of construction subsidies, the MRG created higher fiscal risks for the government because it was harder to estimate the costs and benefits. The government guaranteed private investors a certain percentage of expected revenue for a project. If revenue fell below the guaranteed level, the government filled up the gap. In return, the government had the right to redeem revenue above a certain revenue level based on projected revenue.

As of the end of 2008, about W1,390.3 billion in MRG subsidies were paid to private project companies. Though the MRG system for unsolicited projects was ended in 2006, the government still was required to pay the subsidies for the projects agreed to before the system ended. Early projects started operation but generated actual demands of only 50% of expected demand on average. As a result, large amounts of government payments have been made in MRG subsidies annually. Table 3-2 shows the number of projects with MRG payments and the total amount paid per year. As more projects move into the operational phase, the MRG subsidy amount is expected to increase.

Table 3-3 shows some examples of MRG payment that are actually being subsidized in accordance with the MRG program. It shows the different levels of operational risk shared between concessionaire and the government in national projects. It can be seen from the table that in many of the BTO projects, the government bore more

Table 3-2 Total Amount of Minimum Revenue Guarantee Subsidies for Projects in Operation By Year (W billion)

	2001	2002	2003	2004	2005	2006	2007	2008 (Estimated)	Total
Number of projects	2	2	3	6	5	7	8	8	–
Amount	65.3	73.7	142.0	157.8	123.3	186.2	285.7	376.2	1,390.3

Source: Internal data (2001–2008) from the Ministry of Strategy and Finance, Republic of Korea.

risk than the concessionaire. In 2007, 37 out of 62 signed BTO contracts managed by the central government included MRG clauses.[14] The actual government payment for MRG has significantly increased in recent years.

One of criticisms of the MRG system was that the government took on most of the project risks, but provided unreasonable high returns to the private participants. Higher MRG levels imply more risk is transferred from the private participants to the government. Obviously, the extreme case will be a fixed payment from the government, in which case the PPP project becomes a BTL project. As the MRG level becomes higher, the returns provided to private participants should be lower. In the early era of PPP projects, the returns to BTO projects were very high despite the high MRG level provided by the government. Effectively, private participants received very attractive government guaranteed returns from their PPP investments, which exceeded the yield of the 5-year Treasury bond by 5%–8%.

Another criticism of the MRG system was that it discourages the project company from trying to maximize revenue, the so-called moral hazard problem. The worst case of the moral hazard problem arose in projects where the main user of the facility was the project company. Port projects are typical cases. Private port operators are susceptible to an extreme moral hazard if they are eligible for MRG subsidies and need not work to increase port traffic.

The MRG system has been a financial burden to the government. The revenue risk imposed on the government has been realized and has put considerable pressure on the national budget. Various efforts are being initiated by the government to mitigate the burden from its MRG commitments. One of most direct efforts is to consult with the project company and develop plans to increase revenue. Other efforts include preparing refinancing guidelines. When the project company refinances, the principle of a 50:50 share of refinancing gains between the project company and the government is required in the annual PPP Basic Plan. In practice, the actual gain for the government varies depending upon the methods used for measuring the gain.

Build–Transfer–Lease Projects

As discussed above regarding a BTO project, a private sector participant builds infrastructure, transfers ownership to the government, and recoups the investment by operating the facilities. Under this method, a private sector participant typically assumes the risk of operating the facilities. The government amended the PPP Act

[14] Among them, only eight projects with MRGs are in operation; the rest are under construction.

Table 3-3 Minimum Revenue Guarantee Agreement—Actual Subsidy Paid in 8 National Projects (%, W billion)

Classification		2001	2002	2003	2004	2005	2006	2007	2008 Estimated
Incheon International Airport Expressway: 80% guaranteed over 20 years (operated since 21 November 2000)	Actual/projected traffic volume	47%	45%	41%	39%	53%	52%	52%	49%
	MRG subsidy	59.1	68.4	95.3	100.9	66.1	71.0	80.8	93.4
Cheonan–Nonsan Expressway: 82% guaranteed over 20 years (operated since 23 December 2002)	Actual/projected traffic volume	–	–	47%	52%	55%	54%	58%	55%
	MRG subsidy	–		40.4	38.6	39.0	40.4	39.0	43.0
Dague–Busan Expressway: 90% guaranteed over 20 years (operated since 11 February 2006)	Actual/projected traffic volume	–	–	–	–	–	56%	61%	55%
	MRG subsidy	–	–	–	–	–	33.7	33.1	420
Outer Beltway 1 (Ilsan–Toegyewon): 90% guaranteed over 20 years (operated since 30 June 2006)	Actual/projected traffic volume	–	–	–	–	–	159%	185%	-
	MRG subsidy	–	–	–	–	–	(4.8)	(16.7)	-
Gwangju 2nd Beltway, Section 1: 85% guaranteed over 28 years (operated since 29 November 2000)	Actual/projected traffic volume	56%	65%	63%	61%	59%	53%	43%	40%
	MRG subsidy	6.2	5.3	6.3	7.0	8.6	10.0	11.7	15.0
Woomyunsan Tunnel: 85% guaranteed over 30 years (operated since 31 December 2003)	Actual/projected traffic volume	–	–	–	40%	45%	49%	51%	45%
	MRG subsidy	–	–	–	10.5	9.6	8.6	7.6	10.0
New Mokpo Outport 1-1: 90% guaranteed over 20 years (operated since 29 May 2004)	Actual/projected traffic volume	–	–	–	62%	99%	65%	65%	33%
	MRG subsidy	–	–	–	0.75	0	2.5	2.9	4.4
New Mokpo Outport 1-2: 80% guaranteed over 20 years (operated since 30 May 2004)	Actual/projected traffic volume	–	–	–	75%	74%	80%	56%	44%
	MRG subsidy	–	–	–	0.02	0.14	0	0.9	1.8

MRG = minimum revenue guarantee.

Notes: 1) In the case of Incheon International Airport Expressway, MRG for 2001 was 90% and 80% in the following years.
2) Only the projects with confirmed details for 2008 are updated.

Source: Internal data (2001–2008) from the Ministry of Strategy and Finance, Republic of Korea.

Table 3-4 Number of Signed Build–Transfer–Lease Projects and Total Cost as of September 2009
(W hundred million)

Project Phase		Primary/ Middle Schools	Dorms of Nat'l Univ.	Vocational Colleges	Sewage Systems	Military Residential Facilities	IT	Cultural Facilities	Medicare and Welfare	Railway	Science Museum	Total
In operation	Number of projects	125	10	1	1	1	–	4	–	–	–	142
	W hundred million	4.6	0.5	0.03	0.02	0.02	–	0.1	–	–	–	5.3
Under construction	Number of projects	11	4	–	53	7	–	12	1	2	2	92
	W hundred million	0.4	0.4	–	3.6	0.4	–	0.4	0.1	1.0	0.05	6.5
Preparing for construction	Number of projects	–	–	–	2	2	1	2	1	–	–	8
	W hundred million	–	–	–	0.1	0.1	0.2	0.02	0.03	–	–	0.4
Total	Number of projects	136	14	1	56	10	12	18	2	2	2	242
	W hundred million	5.1	0.9	0.03	3.8	0.5	0.2	0.5	0.2	1.0	0.05	12.2

IT = information technology, Nat'l. Univ. = national university.

Source: Internal data (through September 2009) from the Ministry of Strategy and Finance, Republic of Korea.

in 2005, expanding the scope of PPPs from conventional transport infrastructure to a wider range of facilities, including educational, welfare, and cultural facilities. The BTL method is mainly used for such social infrastructure projects. For a BTL project, a private sector participant builds the infrastructure and receives facility lease fees from a government agency for an agreed period of time in order to recoup the investment.

As of September 2009, a total of 242 BTL projects were signed, with a total investment cost amounting to W12.2 trillion. The BTL projects include: 8 signed, 92 under construction, and 142 in operation. Among the 242 BTL projects, 136 are primary and middle schools, 56 are environmental sewage facilities, 10 are military residential facilities, and 18 are cultural facilities.

Private Financing through Infrastructure Bond and/or Fund

Infrastructure Bond

An infrastructure bond is a bond issued by financial institutions in relation to PPP projects. A separate tax rate of 14% is applied to the interest revenue from bonds with 15 years' maturity or more, according to Article 29 of the Restriction of Special Taxation Act (extended through 31 December 2009). So far, infrastructure bonds have been issued in seven projects (Table 3-5).

Utilization of the infrastructure bonds has been low despite the benefits provided to investors. Out of the 203 BTO projects implemented to date (as of September 2009), only 7 have been financed partly by issuing infrastructure bonds. The reasons for the low utilization of these bonds include the unique characteristics of the infrastructure projects in which funds need to be provided in a sequential manner corresponding to the progress of construction and future equity sales require consent from debt providers.

Because infrastructure projects have different financing requirements depending on the project's completion rate, funds need to be withdrawn over several periods. Financing with a bond issuance would either result in several issuances according to the funding needs or a large one-time issuance and holding of idle money. There was one project in which infrastructure bonds, underwritten by the Korea Development Bank, were structured so that the bonds were issued at different times according to the completion schedule. According to this example, using infrastructure bonds to raise funds in accordance with the construction schedule does not pose a serious

Table 3-5 Issue of Infrastructure Bond

Category	By Sector			Total
	Airport	Road	Railways	
Number of projects	2	3	2	7
Amount of bond Issuance (W billion)	146.5	1,630.0	1,600.0	3,376.5
Amount of issuance/ Total project cost (%)	74.75	35.06	35.23	–

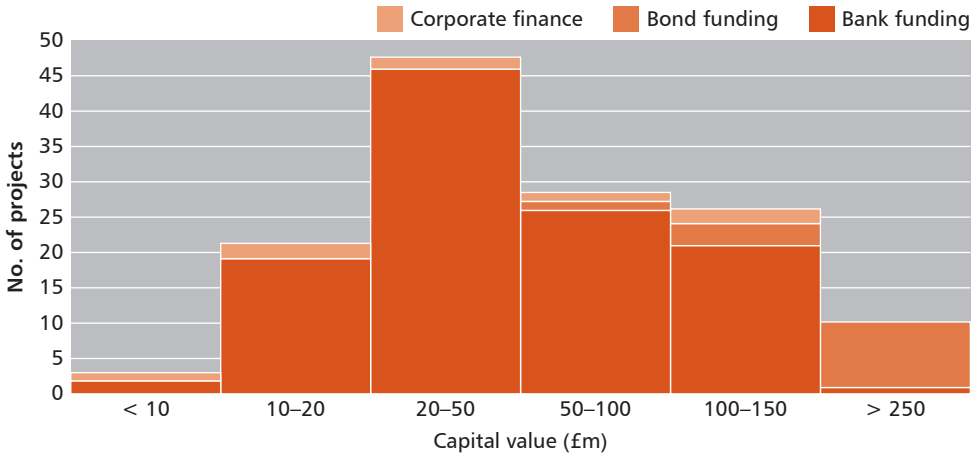
Source: Internal data (through 2009) from the Ministry of Strategy and Finance, Republic of Korea.

obstacle. However, most managing banks that fund PPP projects do not have the underwriting ability of the Korea Development Bank. Therefore, issuing infrastructure bonds is an alternative only when the project company selects Korea Development Bank as a managing bank.

PPP projects typically involve refinancing once the construction is completed. Refinancing a project requires the approval of interested parties. If only one bank is involved as a lender, consent would be gained much easier than in the case when bonds are issued to several parties. Moreover, due to the nature of bonds, the issuers cannot always predict who the buyers would be. Therefore, it would be convenient to include a clause at the time of bond issue requiring the bondholder to consent to future refinancing of the project.

In the United Kingdom, private finance initiative (PFI) projects seem to rely more on bank financing than infrastructure bond financing. Figure 3-7 shows that for most projects, funding involves senior debt provided by banks. It can be seen that bond financing is the instrument of choice for large transactions. It is often assumed that corporate financing is only appropriate for small projects.[15] Figure 3-7 charts the number of projects across different funding methods.

Figure 3-7 Analysis of Transaction Size and Financing Route of United Kingdom Private Finance Initiative Projects, 2004–2007



Source: Partnership UK. 2007. PFI: *The Stage of the Market 2007.* London: PUK.

Infrastructure Fund

The infrastructure fund is a vehicle that indirectly invests money collected from many personal investors in PPP projects. This vehicle is established and operated according to Article 41 to Article 44 of the PPP Act. The infrastructure fund is a kind of mutual fund that invests in infrastructure PPP projects. Because it is a special purpose mutual fund, it is subject to the Act on Business of Operating Indirect Investment Assets, unless the PPP Act directs otherwise. The PPP Act supports infrastructure funds by exempting them from compliance with the Fair Trade Act. This allows the infrastructure funds to hold more than what the Fair Trade Committee allows (listed

[15] Partnership UK. 2007. *PFI: The Stage of the Market 2007.* London: PUK.

Table 3-6 Infrastructure Fund for Build–Transfer–Operate Projects

	Fund A	Fund B	Fund C	Fund D
Date of establishment	15 December 1999	12 December 2002	9 May 2005	24 January 2006
Existing period (years)	20	20	20	15
Promised amount of Investment (W billion)	141	1,260	1,500	1,190

Source: Internal data from the Ministry of Finance and Strategy, Republic of Korea.

Case 1—Infrastructure Fund in the Republic of Korea: The Macquarie Korea Infrastructure Fund, an infrastructure fund that pools investment in public–private partnership (PPP) projects, originally started as a private equity fund but later converted to a public fund based on an active investment and performance track record in Korean PPP projects. It was listed on the London Stock Exchange and the Korean Exchange on 14 March 2006 and 15 March 2006, respectively, and became the first Korean infrastructure fund to be listed (first overseas listing by an infrastructure fund).

Source: www.macquarie.com/mgl/mkif/kr

Case 2—Infrastructure Fund in Foreign Countries: Macquarie Bank mainly invests in emerging markets in Asian countries. In 2006, it made an average profit of 15.2%, which exceeded Standard & Poor's index of 13.6%. Macquarie Bank finances by listing some of its funds on Australia's stock exchange. It operates over 30 funds all over the world worth a total of $35 billion. In May 2006, Macquarie Bank collected an additional $530 million to expand investment overseas. Macquarie Bank is constructing and operating 6 airports and 28 turnpikes in the United States, Europe, and Asia, and it is planning to expand investment in social overhead capital projects. Table 3-9 lists the Macquarie Bank's infrastructure funds as of December 2007.

Source: Korea Institute of Finance. 2007. *International Finance* Issue Vol. 16, No. 2. Seoul.

Case 3—Infrastructure Fund in a Foreign Country: American investment bank Goldman Sachs collected a record high of $6.5 billion exclusively for the social overhead capital (SOC) fund GS Infrastructure Partner Fund, which was closed on 27 December 2006. In the future, this fund plans to invest in SOC in the United States, Europe, and other advanced countries. Goldman Sachs is also planning to invest additional $750 million of its own assets in this fund.

Source: Korea Institute of Finance. 2007. *International Finance Issue Vol. 16*, No. 2. Seoul.

corporation: 30%; non-listed corporation: 50%). As of December 2006, there were four infrastructure funds in Korea.

In 2005, the asset size of the infrastructure fund, assisted by recent economic growth in emerging Asian market, increased by 71% compared to the previous year, making its asset value $98.1 billion. This was the result of low interest rates and the pension

Table 3-7 Asset Composition and Characteristics of Macquarie Korea Infrastructure Fund

Status/Project		Investment Amount (W billion)				Project Period (year)	Minimum Revenue Guarantee		
		Debt							
		Senior	Sub	Equity	Total		Period	Guarantee (%)	Redemption (%)
In operation	Incheon International Airport Expressway		51.7	58.2	109.9	30	20	80	+80 return in stages
	Baekyang Tunnel	124.4		1.0	125.4	25	25	90	110
	Gwangju 2nd Beltway, Section 3-1	75.0		28.9	103.9	30	30	90	110
	Gwangju 2nd Beltway, Section 1	142.0	35.3	13.1	190.4	28	28	85	+85 return in stages
	Woomyunsan Tunnel			20.3	20.3	30	30	85	+82 return in stages
	Cheonan–Nonsan Expressway		182.0	87.8	269.8	30	20	82	110
	Soojungsan Tunnel	72.0	19.3	47.1	138.4	25	25	90	110
	Daegu 4th Beltway East		32.0	58.3	90.3	24	20	80	120
	Machang Bridge		51.3	19.5	100.8	30	30	80	120

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Table 3-7 *continued*

Status/Project		Investment Amount (W billion)				Project Period (year)	Minimum Revenue Guarantee		
		Debt							
		Senior	Sub	Equity	Total		Period	Guarantee (%)	Redemption (%)
Under construction	Seoul–Chuncheon Expressway	–	79.4	48.6	128.0	30	15	80-70-60	120-130-140
	Seoul Subway Line 9	–	33.5	41.0	74.5	30	15	90-80-70	110-120-130
	Incheon Grand Bridge	188.0	89.4	74.7	352.1	30	10	70	120
	Yongin–Seoul Expressway	–	77.0	–	206.6	30	10	–	–
	Seosuwon–Osan–Pyungtaek Expressway	–	80.0	–	–	30	15	–	–
	Busan New Port Phase 2-3	–	–	–	193.0	29	–	–	–
Total	475.4	932.0	772.8	2,180.2				–	–
Portion	21.8	42.8	35.4	100.00				–	–

Note: As of 28 January 2008. 2007 Full Year Results Presentation (29 January 2008).

Source: Internal data from the Ministry of Strategy and Finance, Republic of Korea.

Table 3-8 Earning Rates of Funds Listed on Australian Securities Exchange, as of September 2006

Fund Name	Asset ($ million)	Earning Rate		
		1 year	3 years	5 years
Macquarie Infrastructure	8,099	–2.19	14.99	8.76
Macquarie Airport	5,189	–0.89	27.33	–
Macquarie Communications	2,448	11.46	40.04	–
Babcock & Brown Infrastructure	2,422	–3.452	4.25	–
Australian Infrastructure	814	–7.95	20.31	17.37
GasNet Australia Group	436	14.40	20.90	–

Source: Australian Stock Exchange, quoted in Korea Institute of Finance. 2007. *International Finance Issue Vol. 16*, No.2. Seoul.

Table 3-9 Macquarie Bank's Other Infrastructure Funds, as of December 2007

Listed Infrastructure Funds	
Macquarie Infrastructure Group	One of the largest developers of toll roads in the world
Macquarie Airports	A specialist in international airport investment vehicle
Macquarie Communications Infrastructure Group	A specialist in communications infrastructure fund
Macquarie Power & Infrastructure Income Fund	Invests in North American infrastructure assets, with an emphasis on power infrastructure
Duet Group	Investment fund principally investing in Australian and New Zealand utility and energy assets
Macquarie Infrastructure Company	Owns, operates, and invests in a diversified group of infrastructure businesses in the United States and other developed countries
Macquarie Airports Reset Exchange Securities Trust	Registered management investment scheme issuing hybrid securities
Macquarie Capital Alliance Group	Broad global investment mandate with the ability to invest in any industry sector (except property)
Macquarie International Infrastructure Fund	Owns, operates, and invests in a diversified group of infrastructure businesses around the world
Macquarie Media Group	Invests in media assets globally
Macquarie Korea Infrastructure Fund	Investment company providing Korean institutional investors with diversified exposure to local infrastructure assets
Unlisted Infrastructure Funds	
Global Infrastructure Fund	10-year closed end fund focusing on infrastructure investments in Organisation for Economic Co-operation and Development (OECD) countries
Global Infrastructure Fund II	10-year closed end fund focusing on infrastructure investments outside of Australia

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Table 3-9 *continued*

Global Infrastructure Fund III	10-year closed end fund with a focus on infrastructure or infrastructure-like assets in OECD countries
Macquarie Essential Assets Partnership	Canada's first fund focusing on essential infrastructure assets
African Infrastructure Funds	Macquarie currently has two closed end infrastructure funds investing predominantly in South African infrastructure projects
Macquarie European Infrastructure Fund	Wholesale fund focusing on investments in infrastructure and related assets located in European OECD countries
Macquarie European Infrastructure Fund II	Wholesale investment vehicle with a mandate to invest in infrastructure businesses located in European Union (EU) member states, Norway, Switzerland, and other countries joining the EU on set dates during the commitment period
ZonesCorp Infrastructure Fund	Investments in infrastructure and related assets located in industrial and commercial zones, predominantly in Abu Dhabi. Projects are anticipated to be largely greenfield in nature.

Source: www.macquarie.com/eu/infra/index.htm

Box 3-1 Selected Major Public–Private Partnership Projects in the Republic of Korea

Incheon International Airport Expressway

Incheon International Airport Expressway is the build–transfer–operate (BTO) toll road No. 1, which was built in accordance with the Act on Promotion of Private Capital Investment in Social Overhead Capital enacted in 1994. It originally started as a government-financed project but was shifted to a BTO project later to help ease fiscal burdens on the government and incorporate the private sector's creativity and efficiency. A consortium of 11 construction companies signed a concession agreement with the government to start construction in 1995. Since its completion in 2000, the expressway has undergone a refinancing process, and now all equity holders are financial institutions.

- Total project cost: W1,334 billion
- Capital structure: equity/debt/construction subsidy = 25%/59%/16%
- Length: 40.2 kilometers, 8 lanes
- Competent authority: Ministry of Land, Transport and Maritime Affairs
- Construction period: November 1995–November 2000
- Operational period: 30 years
- Minimum revenue guarantee: 80%, 20 years
- Current phase: in operation

Seoul Beltway Northern Section

Seoul Beltway is a BTO project that was undertaken to help ease rapidly deteriorating traffic congestion in the Seoul capital area as well as to cope with additional traffic demand resulting from the construction of Seoul's new satellite towns. Out of the total 127-kilometer beltway, the southern section started its construction financed by the government in 1988 and opened to traffic in 1999. The northern section started its design as a PPP project in 1995, and was completed in 2006 and 2008 on a phased basis. Now, the road has come to have the function of a "ring road," which connects major satellite towns on the outskirts of Seoul.

continued on next page

Box 3-1 *continued*

This project includes minimum revenue guarantee (MRG) provisions in its concession agreement, but as the actual demand hovered around 130% of expected demand since completion, the government has received revenues in excess of 110% of the initially projected amount since 2006. The government is using the revenues to lower tolls.

- Total project cost: W1,471 billion
- Capital structure: equity/debt/construction subsidy = 23%/51%/25%
- Length: 36.3 kilometers, 8 lanes (Total Length: 128 kilometers)
- Competent authority: Ministry of Land, Transport, and Maritime Affairs
- Construction period: June 2001–June 2008
- Operational period: 30 years
- Minimum revenue guarantee: 90%/110%, 20 years
- Current phase: in operation

Busan New Port Phase 1

The Busan New Port Phase 1 project aims to expand deficient harbor facilities at existing ports in Busan and establish a logistics hub in Northeast Asia. Out of the total 30 berths (9.95 kilometers) planned, the first phase of 9 berths have been allocated to BTO projects, with the first 3 of them completed in 2006 (Phase 1-1), and the remaining 6 completed in 2009.

Aside from construction subsidies, the government has provided financial support for the construction of basic harbor facilities, access transport facilities (roads and railroads), and basic infrastructure facilities in the hinterland industrial area. In addition to equity holdings by large Korean contractors, such as Samsung, Hanjin, Kumho, and Daewoo, and financial institutions, DP World, a global port developer and operator, holds a 25% equity stake in the port's operation.

- Total project cost: W1,648 billion
- Capital structure: equity/debt/construction subsidy = 20%/55%/25%
- Work scope: 9 berth (50,000 tonnes), 3.2 kilometers
- Competent authority: Ministry of Land, Transport, and Maritime Affairs
- Construction period: 2001–2009
- Operational period: 50 years
- Minimum revenue guarantee: None
- Current phase: in operation

Metropolitan Landfill Gas Power Plant

The Metropolitan Landfill Gas Power Plant is a BTO project to construct and operate a power plant that generates electricity by utilizing land refill gas in the metropolitan area. The gas was simply burnt up before, but now the plant can process it to use as an energy resource. This project is expected to not only prevent and control bad odor in the neighboring areas and create added values economically, but also contribute to Korea's fulfillment of its obligation to reduce greenhouse gas emissions in accordance with the international conventions on climate change.

- Total project cost: W77.2 billion
- Capital structure: equity/debt = 25%/75%
- Work scope: 50-megawatt power plant and ancillary equipment
- Competent authority: Ministry of Environment

continued on next page

Box 3-1 *continued*

- Construction period: March 2004–June 2006
- Operational period: 11 years
- Minimum revenue guarantee: 90%, 11 years
- Current phase: in operation

Chungju Military Apartment Housing

The investment into the worn-out Chungju military barracks was delayed due to insufficient government funds, but the modernization of these facilities picked up once a build–transfer–lease (BTL) project was begun. The barracks were dedicated in March 2007, the first such project ever to be built and operated using the BTL method in the Republic of Korea.

To help reinvigorate the regional economy, regional construction companies were allowed to take up to 40% in the construction project. A total of 200 families moved into the 12 apartment buildings, and more than 95% of residents showed satisfaction in a survey.

- Total project cost: W18.6 billion
- Work scope: 200 military apartments and convenience facilities
- Competent authority: Ministry of Defense
- Construction period: September 2005–March 2007
- Operational period: 20 years
- Current phase: in operation

Ulsan National Institute of Science and Technology

While most college facilities built using the BTL method are part of existing college complexes, such as dormitories and student centers, the Ulsan National Institute of Science and Technology was the first case of the construction of an entire campus using the BTL method. This campus has been designed as a smart, state-of-the-art, environmentally friendly, and digitized campus. It completed the first phase of construction and opened in February 2009. The BTL project company is not only responsible for facility maintenance, management, repair, cleaning, and safety but also for operating dormitories, gymnasium, shops, parking lots, etc.

- Total project cost: approximately W250 billion
- Work scope: site is 1,028,200 square meters; total floor area is 153,691 square meters (educational, administrative and ancillary buildings, dormitories and residential buildings, etc.)
- Competent authority: Ministry of Education, Science, and Technology
- Construction period: 2007–2010 (1st Phase 2007–2009)
- Operational period: 20 years
- Current phase: under construction

Source: Internal data from PIMAC, KDI.

funds' expanding investment in the infrastructure fund in order to secure more stable long-term returns. As more funds flowed into private equity funds, in June 2006 the inflow of funds increased by 50% compared to only 2% in early 2000, and the amount raised by issuing stocks was $29 billion, which was more than 7 times the amount raised the previous year.[16]

[16] Korea Infrastructure Fund (KIF). 2006. *International Financial Issues.* Seoul.

Table 3-10 Annual Financing Schedule for 116 Signed Build–Transfer–Operate Projects (Unit: W trillion)

Financing Type	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Equity capital	0.00	0.02	0.10	0.49	0.52	0.33	0.80	0.89	1.40	1.19
Borrowed capital	0.00	0.01	0.04	0.04	0.34	0.44	0.86	0.84	2.11	1.98
Total private investment cost	0.00	0.03	0.14	0.52	0.85	0.77	1.66	1.72	3.52	3.16
Construction subsidy	0.00	0.00	0.00	0.01	0.00	0.33	0.35	0.71	1.00	1.34
Land cost	0.05	0.03	0.02	0.19	0.06	0.55	0.04	0.03	0.45	0.44
Other support (access, loan, design costs)	0.08	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.39	0.28
Total public financing cost	0.13	0.03	0.02	0.20	0.07	0.89	0.40	0.77	1.85	2.06
Total investment costs (private+gov't subsidy +land cost +others)	0.13	0.06	0.16	0.72	0.92	1.65	2.06	2.49	5.36	5.23
Financing Type	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**Total**
Equity capital	1.49	0.96	1.01	0.36	0.22	0.10	0.00	0.00	0.00	9.86
Borrowed capital	2.32	2.86	4.25	4.25	2.29	0.94	0.18	0.17	1.15	24.04
Total private investment cost	3.82	3.82	5.26	4.61	2.51	1.04	0.18	0.17	1.15	33.90 (63.4%)
Construction subsidy	1.46	1.90	2.52	1.73	0.82	0.18	0.03	0.02	0.01	12.41
Land cost	0.66	0.83	0.55	0.32	0.32	0.00	0.00	0.00	0.00	4.54
Other support (access, loan, design costs)	0.38	0.46	0.38	0.39	0.08	0.08	0.00	0.00	0.00	2.59
Total public financing cost	2.50	3.19	3.45	2.44	1.21	0.26	0.03	0.02	0.01	19.53 (36.6%)
Total investment costs (private+gov't subsidy +land cost +others)	6.32	7.01	8.71	7.04	3.72	1.30	0.22	0.19	1.16	53.43

Notes: 1. Survey of 116 signed projects as of end of December 2007 (57 national and 59 local government projects).
2. Among 144 signed projects, 28 projects were excluded since the data concerned were not available.

Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects.* Seoul: PIMAC, KDI.

Size of Fiscal Commitment in Public–Private Partnerships

The MOSF, with the research of PIMAC, in its estimation announces the total size of the government's future fiscal burden from PPP projects in three dimensions. First, the amount of public financing is estimated by year for already confirmed PPP projects. Second, a rough estimation is made on government commitments that are expected to occur concerning projects under negotiation (yet to be signed) or projects considered in the medium-term PPP plans. These two cases are forecast for the amount of public financing for BTO projects. Third, the government payment for BTL projects is estimated based on a number of scenarios. Finally, comments on the size of contingent liabilities through the MRG program are added as well.

Fiscal Commitment for Signed Build–Transfer–Operate Projects

As of December 2007, concession agreements were signed for 144 BTO projects. According to a PIMAC survey of the contents of the 116 signed BTO agreements (28 small miscellaneous projects such as parking lots, etc., were not included), 57 national projects and 59 local projects involve total investment cost of W53.4 trillion—total private investment cost of W33.9 trillion and public investment of W19.5 trillion.[17] Private investment cost accounts for 63.4%, while public financing takes 36.6%.[18] Public financing of W19.5 trillion includes W12.4 trillion in construction subsidies (63.6%), W4.5 trillion in land acquisition cost (23.2%), and W2.6 trillion in other support (13.4%).

As shown in Figure 3-8, the total private financing and public financing steadily increased from 1997 to a peak in 2008 and then declined. In 2008, the government financing was estimated to be more than W3.5 trillion. After 2011, the amount of private and public financing appears modest, because the forecast is based on already signed and confirmed projects only.

Fiscal Commitment for Planned Build–Transfer–Operate Projects

The amount of fiscal commitment for planned BTO projects, which are under preparation or included in the Medium-Term PPP Plan, published by MOSF in January 2007, is forecast.[19] There are 17 road projects that are preparing an RFP or feasibility study. About 40 port and 6 railway projects are scheduled to be carried out in the Medium-Term PPP Plan. The PPP facility types in environmental sector includes sewage treatment facilities, incinerating facilities, and waste disposal facilities.

Total investment cost is estimated to reach W8.2 trillion in 2010; this upward trend is expected to continue up to W7 trillion–W8 trillion by 2015. Private investment cost is expected to increase steadily to W8.2 trillion in 2010 and then decrease slowly.

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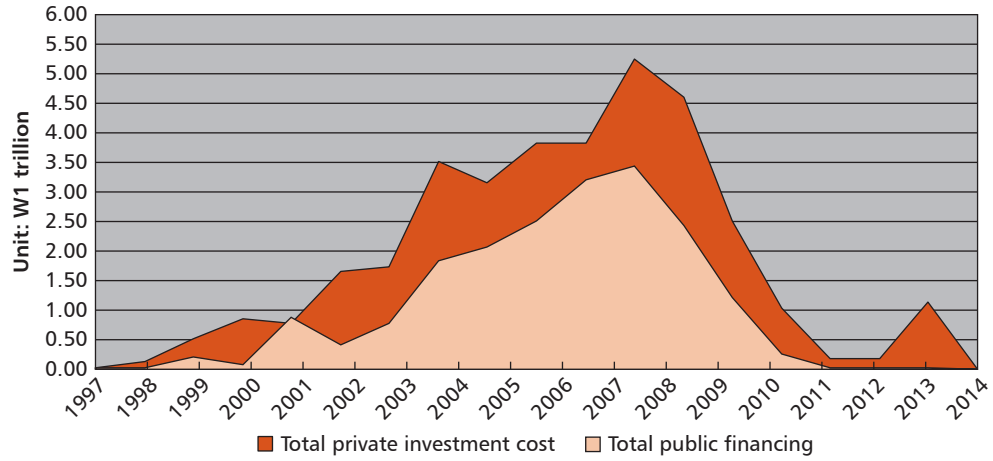
[17] Detailed information on the 28 miscellaneous projects is not yet documented. However, the size of their investment cost is small.

[18] In the survey, the port project figures did not include acquisition cost and other financial subsidies, which may cause some discrepancies.

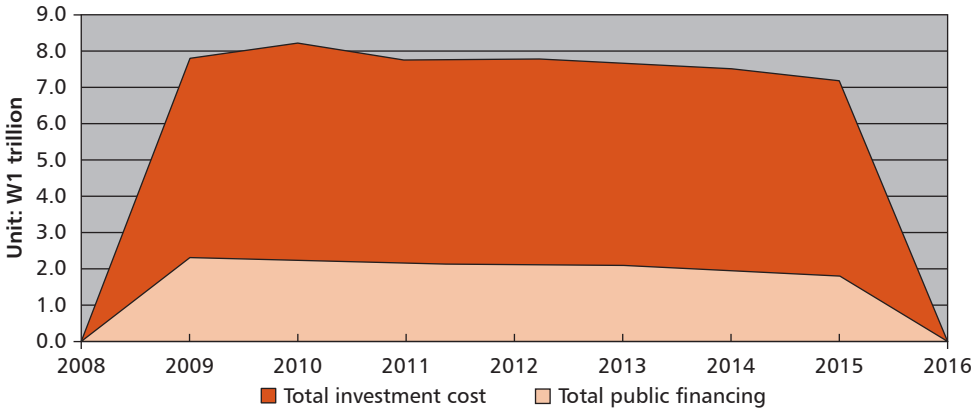
[19] In 2007, the Ministry of Planning and Budget (Ministry of Strategy and Finance since February 2008), with the help of PIMAC, published the Medium-Term PPP Plan, which included detailed PPP investment plans from 2006 to 2015.

Figure 3-8 Total Private Investment Cost and Public Financing of 116 Signed Build–Transfer–Operate Projects (W trillion)



Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects.* Seoul: PIMAC, KDI.

Figure 3-9 Private Investment Cost and Public Financing of Planned Build–Transfer–Operate Projects (W trillion)



Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects.* Seoul: PIMAC, KDI.

Government payments are expected to increase to W2.3 trillion in 2009 and drop to W1.2 trillion in 2011. Government payments could increase beyond 2011 if additional projects not included in the Medium-Term PPP Plan are approved later.

Fiscal Commitment for Simulated Build–Transfer–Lease Projects

The amount of the government's fiscal commitments expected for BTL projects that have been in progress since 2005 is estimated.[20] Some BTL projects were already

[20] For detailed information, see Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects.* Seoul: PIMAC, KDI.

signed as of December 2007, and the amount of public financing for those projects can be accurately confirmed and calculated. Given that the number of signed BTL projects is limited, however, the amount of fiscal commitment is estimated by assuming a couple of scenarios, regardless of whether the project is planned, announced, negotiated, or signed.

Two scenarios are developed by simplifying the amount of future BTL investment. The first scenario assumes that the total amount of investment in BTL projects over 10 years is W37.6 trillion—including W3.8 trillion in 2005, W7.3 trillion in 2006, W5.5 trillion in 2007, W5 trillion in 2008, and according to the Medium-Term PPP Plan of 2006, W5.5 trillion in 2009, W2.5 trillion in 2010, W1.7 trillion in 2011, W1.7 trillion in 2012, W1.7 trillion in 2013, W1.5 trillion in 2014, and W1.4 trillion in 2015.[21] No additional spending is assumed. The second scenario assumes that the investment will sharply increase in the future—the investment amount of the first 4 years is the same as in the first scenario, but an additional W10 trillion is predicted for each of the next 6 years from 2009 through 2015.

In scenario 2, the government payment soars sharply, compared to scenario 1. In scenario 1, government payment begins with W0.4 trillion in 2008 and rises to about W4 trillion in 2018, about W4.23 trillion in 2023, and about W4.4 trillion in 2027.[22] After reaching a peak in 2027, an annual payment of W1 trillion–W2 trillion is maintained and then begins to decrease. According to Figure 3-11 in scenario 2, government payment is W0.4 trillion in 2008. After that, the government payment increases and exceeds W10 trillion in 2019. From 2020 through 2030, the annual payment amounts to W9 trillion–W10 trillion. After reaching almost W10.8 trillion in 2030, it begins to decrease.

Contingent Liability through Minimum Revenue Guarantee

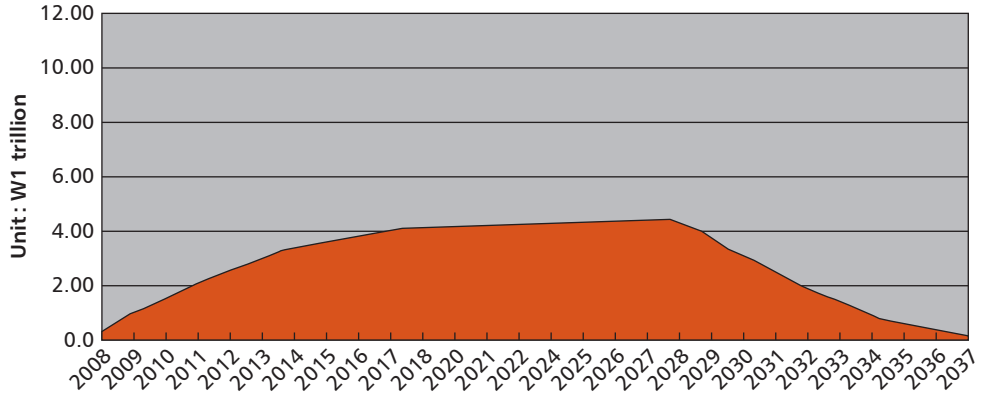
The amount of fiscal commitment for the MRG program for the already signed 36 BTO projects should also be considered. The government commitment for the MRG can be estimated by calculating the difference between the amount of MRG as included in the concession agreement of each project and the expected actual operational revenue. In theory, actual operating revenue could be much higher, and the government may consider redeeming some of the revenue. In reality, however, it is common that actual operating revenue is lower than the expected figure; there has been just one project that yielded operating revenue higher than expected. The experience shows that estimates of operating revenue tend to be too optimistic rather than being rationally based.[23] A Monte Carlo simulation method can be used to estimate the value of MRG contingent liabilities based on 36 signed projects with MRGs.

[21] The amount of investment in 2005–2007 is based on the amount of actual announced investment, while the amount for 2008 is based on the Medium-Term PPP Plan of 2006.

[22] It is assumed that the period of design and construction for each BTL project is 3 years, except 5 years for railway projects. At the same time, the operational cost for each BTL project is assumed to be 25% of the total construction cost.

[23] As of December 2007, for eight national BTO projects, the average ratio between actual revenue and expected (predicted in the concession agreement) revenue is almost 0.5 (50%).

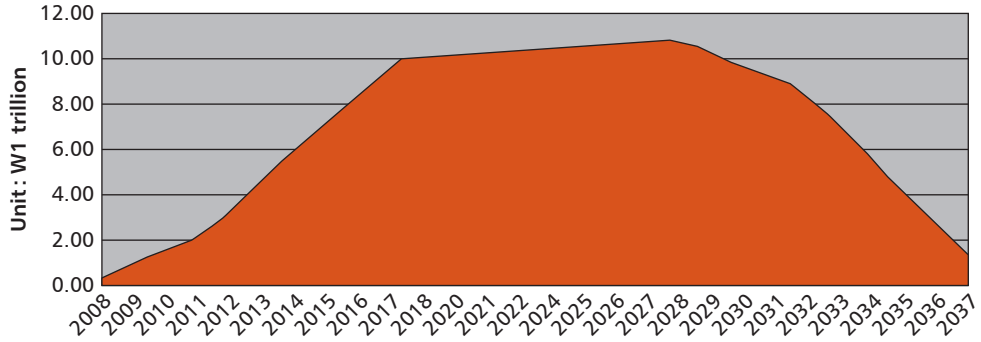
Figure 3-10 Annual Government Payment for Build–Transfer–Lease Projects: Scenario 1 (W trillion)



Assumptions: 1. Government payment = facility lease fee (rate of return 6%, 20 years) + operation cost (25% of estimated construction cost, adjusted for 4% of inflation).
2. Period of design and construction is 3–5 years.

Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects.* Seoul: PIMAC, KDI.

Figure 3-11 Annual Government Payment for Build–Transfer–Lease Projects: Scenario 2 (W trillion)



Assumptions: 1. Government payment = facility lease fee (rate of return 6%, 20 years) + operation cost (25% of estimated construction cost, adjusted for 4% of inflation).
2. Period of design and construction is 3–5 years.

Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-Post Management of PPP Projects.* Seoul: PIMAC, KDI.

Implementation Procedure

The PPP Act and the PPP Enforcement Decree regulate general procurement procedures for public–private partnership (PPP) projects. The PPP Basic Plan formulated under the PPP Act provides a detailed implementation process by project types and initiation and defines the roles of associated parties, such as competent authority, private company, the Ministry of Strategy and Finance (MOSF) line ministries, and the Public and Private Infrastructure Investment Management Center (PIMAC) for each step in the process. A comprehensive and clear definition of the PPP procurement steps in the special law and regulations has been an essential element to improve consistency and efficiency and to reduce uncertainty in implementing PPP projects.

The procurement procedure is designed to secure or enhance the value for money (VFM) of PPP projects. In the planning stage, an assessment of a potential project is carried out in order to ensure VFM of PPP procurement in comparison with traditional public procurement. In the bid selection stage, competitive bidding is mandatory, both for solicited and unsolicited projects; this leads to improving VFM of the project concerned by encouraging bidders to propose higher service quality and reduced project costs.

To secure accountability and conformity of PPP projects with the national infrastructure investment plans and policies, the PPP Act requires the MOSF and the PPP Review Committee (PRC) to deliberate on whether large PPP projects can be implemented as PPP projects before going to the next procurement step.

In addition, standard guidelines have been developed by PIMAC for major documentation, such as performing a VFM study and formulating a request for proposal (RFP) and PPP contract, to facilitate the procurement process and enhance consistency.

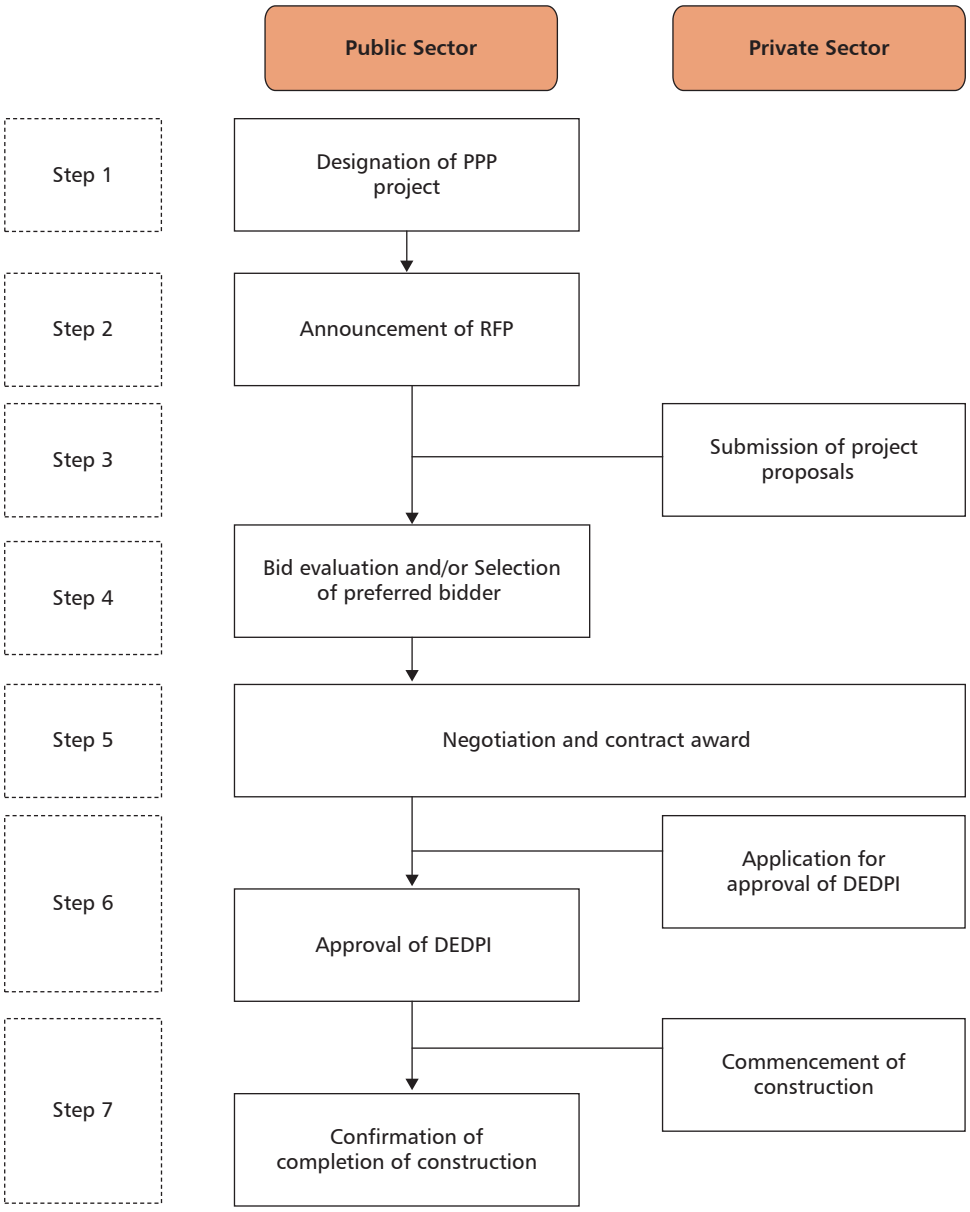
Procedure for Build–Transfer–Operate Solicited Project

Step 1: Designation of Public–Private Partnership Project

The competent authority develops a PPP project plan that describes its investment priority and characteristics of the project. The annual PPP Basic Plan lays out general principles of selecting PPP projects. First of all, a candidate project should fall under one of the 46 facility types covered by the PPP Act. In addition, user affordability, profitability, benefit to the public, and efficiency gain should be carefully examined. It is important for the competent authority to consider whether the candidate project is in line with the national medium- and long-term infrastructure investment plans.

If the candidate project costs are estimated to be more than W50 billion and would require more than W30 billion as subsidy from the central government, the competent authority is required to apply in advance to the MOSF for a preliminary feasibility

Figure 4-1 Procurement Procedure for Build–Transfer–Operate Solicited Project

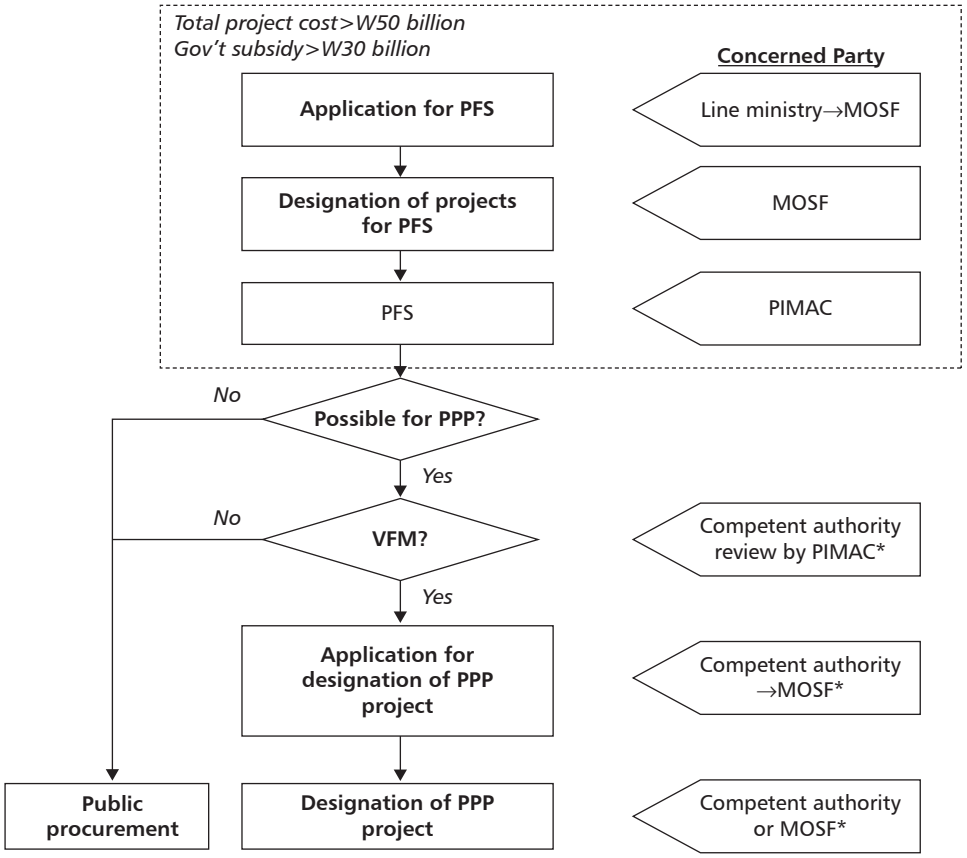


DEDPI = Detailed Engineering and Design Plan for Implementation, PPP = public–private partnership, RFP = request for proposal.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

study pursuant to the National Fiscal Act, as is the case for traditional public investment projects. PIMAC, as a specialized agency commissioned by the MOSF, conducts the preliminary feasibility study (PFS) to examine project feasibility using economic (e.g., cost–benefit analysis) and policy criteria and presents its findings on whether the project is feasible and appropriate for PPP procurement as compared to traditional public procurement.

Figure 4-2 Designation of Public–Private Partnership Project



* Total project cost>W200 billion.

Gov't = government, MOSF = Ministry of Strategy and Finance, PFS = preliminary feasibility study, PIMAC = Public and Private Infrastructure Investment Management Center, PPP = public–private partnership, VFM = value for money.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

The process for designating a PPP project differs according to the project size. For a project with total project cost expected to be less than W200 billion, the competent authority itself conducts a feasibility study, including a VFM test, and determines whether it is appropriate as a PPP project. For a project with total cost expected to be W200 billion or more, however, the competent authority is required to submit the results of feasibility study and basic design documents to PIMAC for review. Then, the competent authority is required to request that the MOSF submit the project to the PRC for deliberation, while including the results of the feasibility study and the findings of PIMAC.[24]

[24] The PRC members are composed of the minister of finance and strategy (chair), vice ministers of line ministries in charge of implementing PPP projects, and private sector experts with knowledge and experience in PPP projects.

Step 2: Announcement of Request for Proposals

Once the project is designated, the competent authority formulates and publicly announces an RFP within 1 year from its project designation. Before the announcement is made, it is important for the competent authority to consult with relevant authorities on related issues and regulations in advance for smooth project implementation afterwards. For projects with total cost of more than W200 billion or requiring more than W30 million as government subsidy, RFP documents must be reviewed by the PRC before the announcement. The competent authority is required to request PIMAC to review the RFP documents before submitting them to the PRC.

Main contents of the RFP include:

- estimated project costs, duration, location, and scale of the project;
- estimated profits of the concessionaire from user fees and supplementary projects;
- procurement method;
- government subsidies if applicable;
- management and operation of the facilities; and
- qualifications of concessionaire.

In case there is no project proposal submitted by the private sector within the specified deadline indicated in the RFP, the competent authority may revise and re-announce the RFP only once within 6 months from the original deadline. The project is normally advertised in the government gazette and the websites of the competent authority and PIMAC.

Step 3: Submission of Project Proposals

Private parties submit project proposals to the competent authority in accordance with the contents of the RFP, the PPP Act, and related regulations. Bidders usually form a consortium composed of builders, maintenance operators, financial institutions, etc. They are allowed to ask questions for clarification on specifications in the RFP. Answers from the competent authority are shared because the same information is required to be made available to all bidders.

Key elements to be included in the project proposal are

- contents of the project proposal (including the basic design documents);
- details of the total project cost and financing plan;
- grounds for estimated free use period or ownership and profit-making period of the facilities;
- management and operation plan for the facilities;
- expenditure plans and revenue estimations including user fee;
- contents of and grounds for implementing supplementary projects, if any;
- contents of and grounds for subsidy request, if any; and
- contents of and grounds for any modification to the RFP, if any.

Step 4: Bid Evaluation and Selection of Preferred Bidder

The competent authority forms an evaluation team with external experts to evaluate proposal bids according to the criteria specified in the RFP. In general, the evaluation

is conducted in two stages—(i) evaluation of pre-qualification and (ii) evaluation of technical and price elements.

In the pre-qualification stage, basic capacities of bidders to design, build, finance, and operate the project are evaluated. Only the bidders who satisfy the pre-qualification requirement can proceed to the second stage of technical and price evaluations.

In the second stage, elements for the pre-qualification stage—the minimum level of qualification and capability—are not included for evaluation. Total evaluation scores are distributed between technical and price elements. The categories to be evaluated and weight to particular categories are adjusted by the competent authorities, considering the characteristics of the project concerned. For example, for the project that requires a relatively low level of technology and management capacity, more weight should be given to price than technical elements. Evaluation criteria should be formulated in a way that they are objective and mutually exclusive and stimulate competition.

The competent authority selects a preferred bidder based on the results of the evaluation. It should select at least two potential concessionaires in case the negotiation with the preferred bidder fails.

Step 5: Negotiation and Contract Award

The competent authority negotiates with the preferred bidder on details of contract terms. Generally, it forms a negotiation team, including external legal, financial, and engineering experts, to negotiate with a private sector partner. The competent authority may request PIMAC to provide support as a team leader or advisor in negotiation.

For efficient management of negotiation, a negotiation period may be specified in the RFP in advance. It may be extended one time, but both parties should strive to complete the negotiation in a timely manner. Any delay between appointment of a preferred bidder and contract award almost inevitably leads to an increase in project costs, hence a higher user fee or government subsidy. To prevent the delay, it is critical for the competent authority to prepare adequately project plans and a detailed RFP before initiating the bidding process. Should the negotiation fail to be completed within the specified time period, countermeasures should be taken, such as initiating a negotiation with the next preferred bidder, re-posting the RFP, or nullifying the designation of the PPP project. The competent authority designates a preferred bidder as a concessionaire to finalize the negotiation of the PPP contract.

Examples of key elements to be included in the PPP contract are

- basic information regarding the PPP project including designation of the concessionaire, determination of the operation and management period as well as facility use, relationship of the rights and obligations of the parties to the concession agreement, etc.;
- matters regarding construction, including the commencement date and duration, supervision, levy of liquidated damages (necessary measures in dealing with delayed construction without reasonable grounds);
- matters regarding determination and adjustment of total project cost and user fees, internal rate of return (IRR), and operating revenue and costs;

- matters regarding government support including guarantee of operating revenue, assistance with applying for authorization and permission, etc.;
- matters regarding maintenance, repair, management, and operation of the facilities;
- matters regarding classification of risk types and principles of risk allocation; and
- matters regarding conditions and procedures for nullifying the concession agreement, and termination payment criteria and procedures thereof.

Deliberation by the PRC and prior review of the draft contract by PIMAC are formally required before designating the concessionaire of a PPP project that exceeds W200 billion or requires a subsidy from the central government. For local projects that involve a central government subsidy of less than W30 billion, deliberation by the PRC is not required.

Step 6: Approval of Detailed Engineering and Design Plan for Implementation

The concessionaire formulates the Detailed Engineering and Design Plan for Implementation (DEDPI) based on the PPP contract and applies to the competent authority for approval of the plan within 1 year from its designation as the concessionaire. The competent authority notifies the concessionaire in writing of its decision on the approval of the DEDPI within 3 months from the filing date of the application, except under special circumstances.

Required documents for the approval of DEDPI include the following:

- location and total area of the project site;
- construction method and technical details of the project;
- construction plan by section or stage;
- plan for land acquisition and usage;
- detailed plan of supplementary projects, if any; and
- other matters that the competent authority deems necessary, such as financing plans.

Step 7: Construction and Operation

Once the competent authority approves the DEPDI, the concessionaire begins construction of the PPP facilities according to the schedule specified in the plan. The concessionaire has a responsibility to acquire all the necessary permits and approvals from relevant bodies in a timely manner. The competent authority monitors the progress of construction to make sure that the qualities of facilities and equipment provided by the concessionaire are appropriate. Normally, the competent authority appoints an independent superintendent to supervise the progress of construction. The concessionaire submits to the competent authority progress reports that are reviewed by the superintendent on a regular basis.

A change in the contract may occur, although it is not desirable, because it could require changes in design or government policies, refinancing, etc. Should a PPP contract that was previously deliberated by the PRC for designation be modified in ways that are disadvantageous to the public sector, deliberation by PRC is again required.

Upon completion of construction in accordance with the DEDPI, the concessionaire should submit a construction completion report to the competent authority within 15 days from the completion date to obtain confirmation of completion and commence operation.

The concessionaire is granted the right to manage and operate the PPP facilities and collect user fees to recover its investment during the concession period in return for transfer of ownership to the government upon completion of construction. It must submit annual management and operational plans and performance and revenue reports to the competent authority.

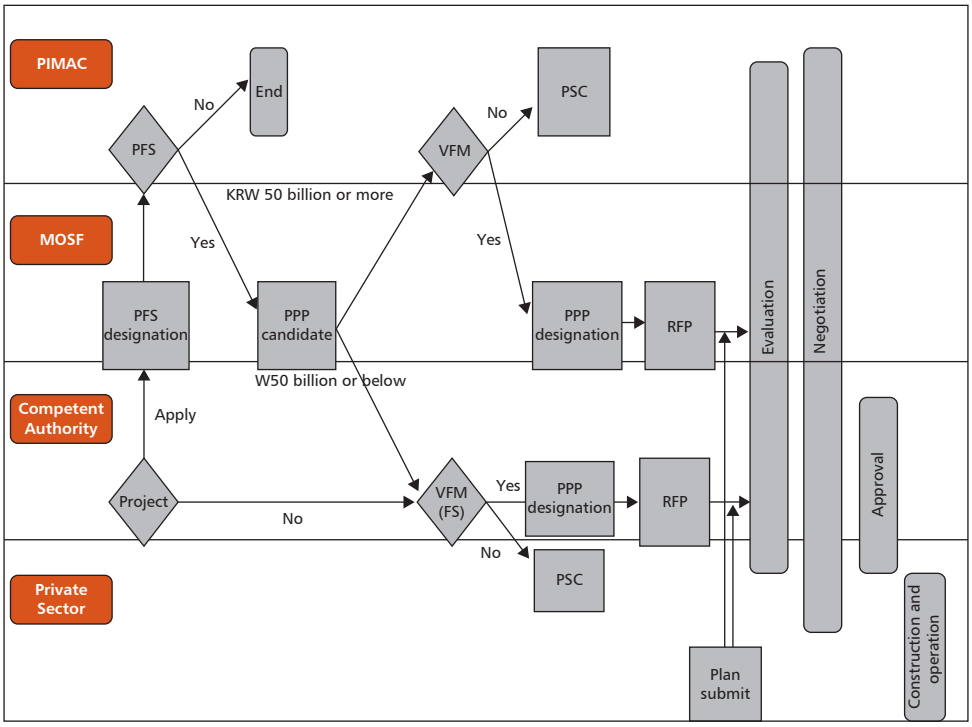
A year before the completion of the concession period, the concessionaire should check all the revertible facilities and equipment in cooperation with representatives from the competent authority for smooth handover to the competent authority.

Procedures for Build–Transfer–Operate Unsolicited Project

Step 1: Submission of Project Proposal

A private sector consortium can propose a PPP project to the competent authority rather than respond to a public sector RFP. The proposal for an unsolicited project should be thoroughly examined by the public sector regarding various aspects, such

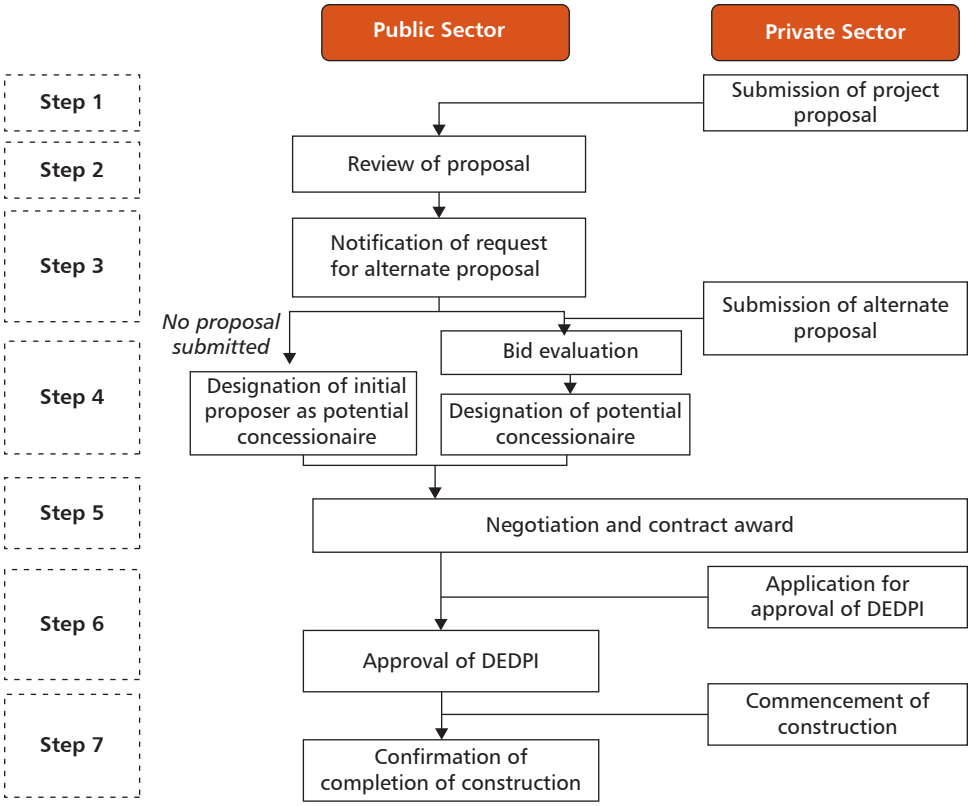
Figure 4-3 Role of Concerned Parties in Solicited Project



FS = feasibility study, MOSF = Ministry of Strategy and Finance, PIMAC = Public and Private Infrastructure Investment Management Center, PFS = preliminary feasibility study, PSC = public sector comparator, RFP = request for proposal, VFM = value for money, W = won.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Figure 4-4 Procurement Procedures for Unsolicited Project



DEDPI = Detailed Engineering and Design Plan for Implementation.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

as whether the project proposed corresponds with the government investment plans and priorities and delivers benefits to the public. In addition, commercial viability is an important issue for unsolicited projects.

Step 2: Review of Project Proposal

PIMAC conducts VFM analysis requested by the competent authority for unsolicited projects. VFM analysis consists of three phases:

- Phase 1 (feasibility assessment): Economic feasibility (mainly cost–benefit analysis) is examined and policy analysis is conducted.
- Phase 2 (VFM assessment): A comparative analysis is conducted between a public sector comparator and the PPP proposal to examine VFM of the PPP option.
- Phase 3 (development of an alternative option using PPP approach): Additional financial analysis is conducted to calculate an appropriate level of project cost, user fee, government subsidy, if applicable, etc., from the public sector perspective and an alternative option using the PPP approach is developed.

PIMAC submits its opinion on the unsolicited proposal to the competent authority and the MOSF with the results of VFM analysis.

The competent authority must notify the private proponent whether it can proceed with the PPP project. To implement an unsolicited project with total costs of more than W200 billion or requiring a subsidy from the central government, prior deliberation by the PRC is required. For local government projects requiring a subsidy less than W30 billion from the central government, on the other hand, deliberation by the PRC is not required.

Step 3: Notification of Request for Alternate Proposals

When pursuing an unsolicited project, the competent authority must notify the public about the outlined content of the project proposal to allow other private parties to submit alternate proposals for bidding. At least 90 days from the notification date should be given for accepting alternate proposals to ensure fair competition.

Based on the merits of the initial proposal, extra points within 10% of the total evaluation points can be awarded upon the review of the VFM assessment. The rate of extra points is included in the RFP. For example, if the initial proposal gets 800 out of the total evaluation points of 1,000 in the bid evaluation and the rate of extra points is set at 8% in the RFP, the total score is 864. The initial proponent can modify its original proposal; however, the maximum level of bonus points to the initial proponent is reduced to 5% of the total evaluation points. Bonus points given to the initial proponent are disclosed in the request for alternate proposals.

Step 4: Bid Evaluation and Selection of Preferred Bidder

Should there be alternate proposals responding to the notification, the competent authority, through an evaluation team, evaluates all the proposals, including the initial proposal, according to the evaluation criteria specified in the request for alternate proposals, and selects a preferred bidder. If there is no other proposal submitted, the initial proponent is designated as the potential concessionaire for negotiation.

It is mandatory for the competent authority to compensate the unsuccessful bidders for part of the bid preparation costs, in order to encourage competition among bidders and maximize private sector efficiency and innovation. For example, when there is only one losing bid, the unsuccessful bidder is reimbursed for 25% of the basic design cost. If there are more than two bids, the second-place bidder receives 30% of the basic design cost, and the third-place bidder receives 20% of the basic design cost.

Steps 5–7: Negotiation to Operation

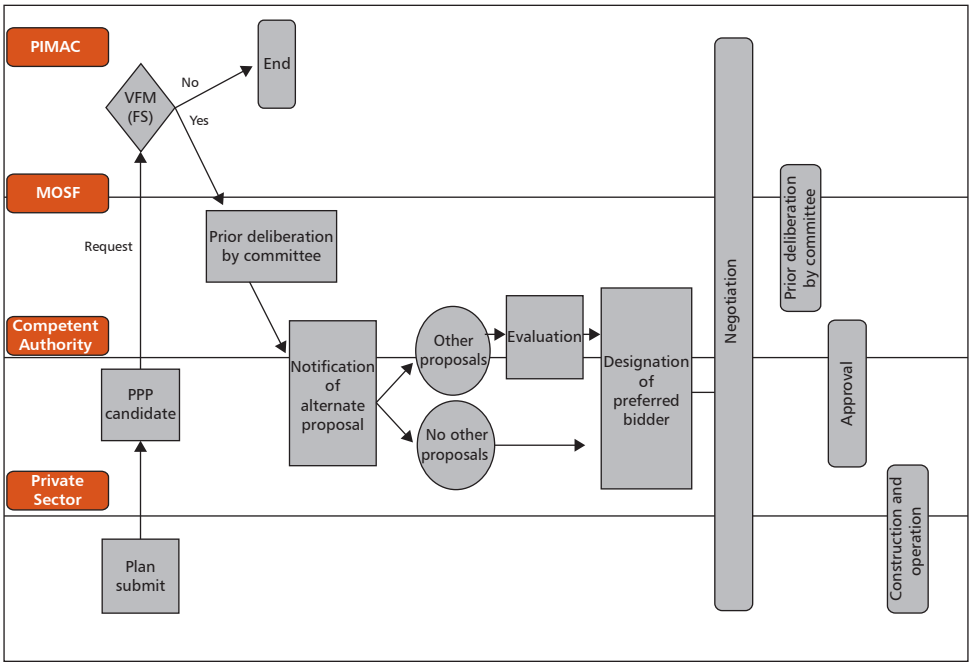
For Steps 5 to 7, that is, from negotiation to contract award, approval of DEDPI, construction, and operation, the same process applies to unsolicited projects as to solicited projects.

Procedure for Build–Transfer–Lease Project

Submission of Build–Transfer–Lease Aggregate Ceiling to the National Assembly

As was pointed out earlier, only solicited projects are eligible for the build–transfer–lease (BTL) method in the PPP Act. In principle, procurement steps of BTL projects are similar to those of build–transfer–operate (BTO) projects, with several

Figure 4-5 Role of Concerned Parties in Unsolicited Project



MOSF = Ministry of Strategy and Finance, PIMAC = Public and Private Infrastructure Investment Management Center.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

additional steps in the initial stage. The PPP Act requires the government to submit the aggregate maximum amount of BTL-type projects (BTL aggregate ceiling) to be implemented within the next fiscal year with the budget proposal to the National Assembly. In this sense, the initial steps for the BTL project planning process by the competent authority and review by the MOSF correspond with the budget cycle of the central government.

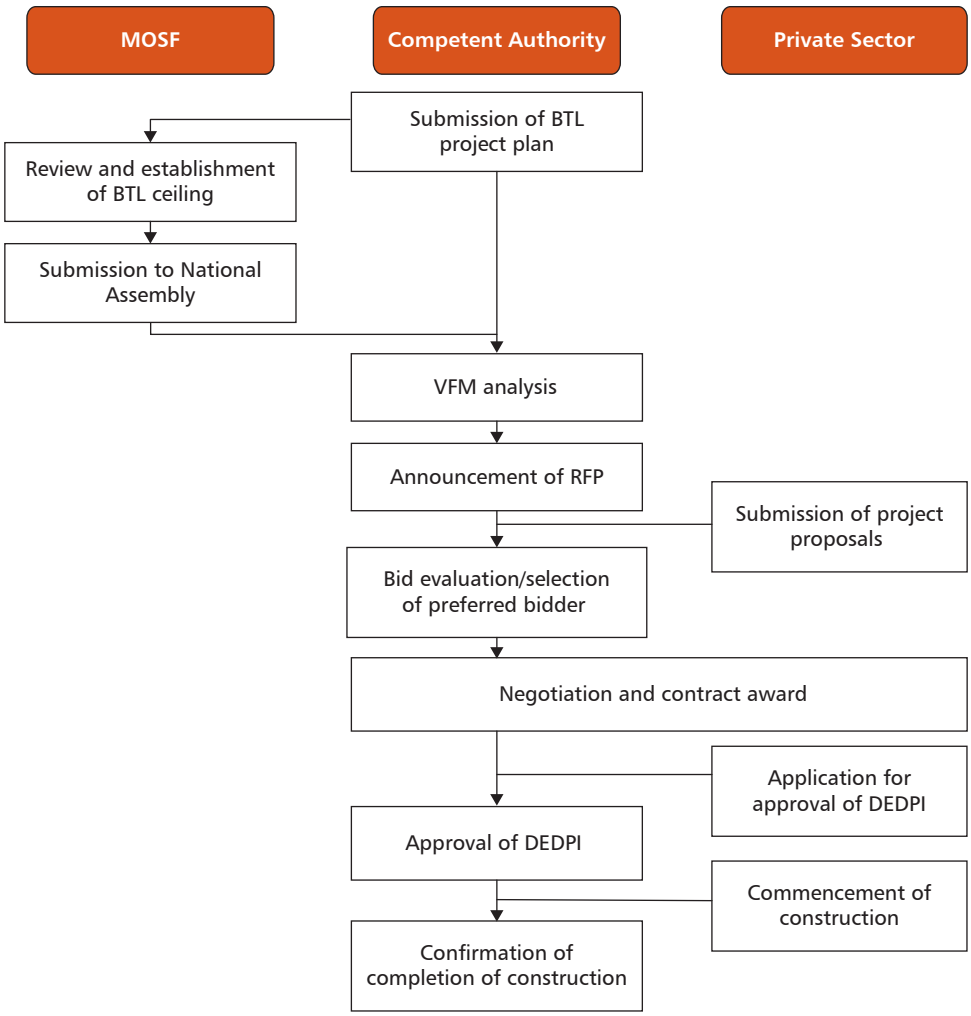
Each line ministry collects and reviews individual BTL project plans submitted by competent authorities (central or local governments) to establish sectoral BTL investment plans for the next year. BTL investment plans of line ministries are submitted to the MOSF with budget requests. For projects with total project costs of W50 billion or more and requiring government subsidy of W30 billion or more, preliminary feasibility studies are required to be carried out in advance.

The MOSF assesses BTL project plans on various aspects, such as future government payment obligation, affordability of competent authorities, investment priorities, adequacy of project schedules, social benefits of the projects, and so on. After review and coordination, the MOSF sets the aggregate and sectoral BTL ceiling for the next year and submits this to the National Assembly together with the budget plan for approval.

Feasibility Studies and Request for Proposals for Build–Transfer–Lease Project

The competent authority must perform the feasibility study, including VFM assessment, and announce the RFP of the project included in the BTL ceiling in the

Figure 4-6 Procurement Procedure for Build–Transfer–Lease Project



BTL = build–transfer-lease, DEDPI = Detailed Engineering and Design Plan for Implementation, RFP = request for proposal, VFM = value for money.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

corresponding year. Through the feasibility study, the competent authority not only examines whether the PPP under consideration delivers additional VFM compared to a traditionally procured alternative, but also develops details of the project plan.

It is important for the competent authority to formulate RFP documents with detailed output specifications and service requirements, so that private companies can adequately prepare for project proposals. Otherwise, negotiations that follow can be long and drawn out in order to adjust expectations and interests. To enhance efficiency and consistency, PIMAC provides general and sectoral guidelines for preparation of the RFP of BTL projects with model output specifications, though detailed design should be adjusted and developed according to characteristics of the individual projects.

Bid Evaluation to Operation

The remaining procurement steps from bid evaluation to construction are similar to the general procedures described in the previous BTO procurement process. Only the level of total project cost that requires prior deliberation by the PRC on RFP documents, designation of the BTL project, and designation of the concessionaire is different in that BTL projects with total project cost of more than W100 billion, which is 50% lower than for BTO projects, require deliberation by the PRC. The main reason for the differences is that the average project costs of BTL projects, which are mostly social infrastructure facilities, are lower than those of BTO projects. In the case of a BTL project, review by PIMAC of draft RFP documents and a PPP contract prepared by the competent authority is mandatory.

For BTL projects, ex-post management and monitoring by the public sector during the operational period is essential because operational performance and service quality are directly linked to the level of government payment to the concessionaire. In this regard, an evaluation committee is organized for regular monitoring and performance measurement. Committee members are normally selected from the competent authority, the concessionaire, users, and expert groups to ensure fair evaluation.

Ex-Post Management, Refinancing, and Renegotiation

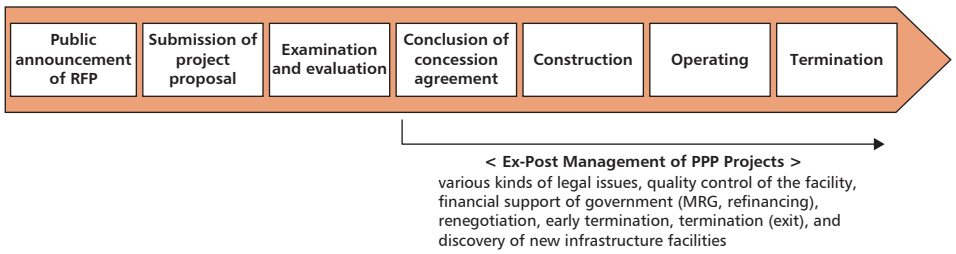
Up to now, the public–private partnership (PPP) project has been focused on the ex-ante stage, meaning project selection and commencement. However, as more projects enter into operational phase, it is expected that the issues of efficiency of project management and renegotiation will be highlighted; this is called the ex-post stage. Thus, it is important to understand the progress of the PPP project and its ex-post management system. This chapter will look at issues of monitoring, performance evaluation, refinancing, and renegotiation.

Monitoring

Currently, PPP projects in Korea are managed by each competent authority (for example, the Ministry of Land, Transport and Maritime Affairs, the Ministry of Environment, the Seoul Metropolitan Government, the Busan Metropolitan City, etc.) and the management structure is stipulated in each concession agreement. Each competent authority manages projects by (i) controlling guidelines for concession agreements and (ii) receiving project progress reports. Figure 5-2 describes the process.

Examples of the competent authority's project management role as described in a concession agreement are show in Table 5-1. The competent authorities are supposed to receive a quarterly report from the project company covering topics shown in Table 5-2 for national and local projects. The competent authorities must check on all PPP projects on a quarterly basis and submit the results to the Ministry of Strategy and Finance (MOSF). In addition to the document submission, they must also separately input status data for each project in the InfraInfo system.[25] The InfraInfo system requires each competent authority to input detailed information about PPP projects in

Figure 5-1 Scheme of Ex-Post Management, Refinancing, and Renegotiation

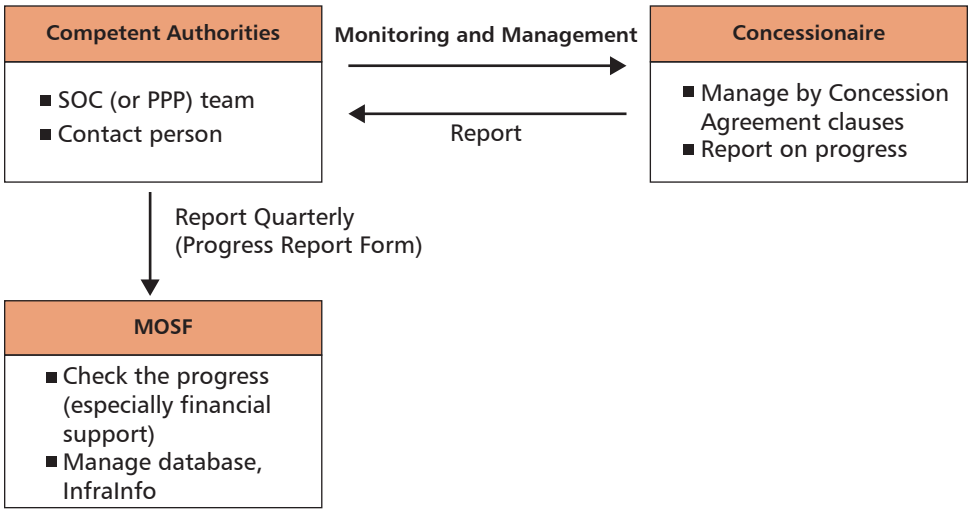


MRG = minimum revenue guarantee, PPP = public–private partnership, RFP = request for proposal.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

[25] The InfraInfo system can be accessed through http://infrainfo.kdi.re.kr.

Figure 5-2 System for Public–Private Partnership Project Management



MOSF = Ministry of Strategy and Finance, PPP = public–private parnterhip, SOC = social overhead capital.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Table 5-1 Project Management Role of Competent Authority in a Concession Agreement

Phase	Content
After conclusion of Concession Agreement	Assist land acquisition (entrusted), approve for-profit business, approve changes to plan
Construction	Provide construction subsidy, supervise construction, approve design changes, approve completion of construction
Operation	Identify and verify usage data (related to fiscal support such as minimum revenue guarantee), adjust toll or tariff (mutual consultation)
Termination	Terminate management/operational rights
Entire period	Process administrative work, provide administrative support (permission and authorization), approve investor changes (5% or more), approve and discuss maintenance and management plan, approve early termination, approve any transfer or selection of substitute company

Sources: Ministry of Land, Transport and Maritime Affairs. 2000. Concession Agreement of Incheon International Airport Expressway. Incheon International Airport Expressway Co. Seoul; Ministry of Land, Transport and Maritime Affairs. 2000. Concession Agreement of Cheonan–Nonsan Expressway. Cheonan–Nonsan Expressway Co. Seoul.

Table 5-2 Public–Private Partnership Project Progress Report Form—Summary

Category		Key Points
1. Project status	Project outline	Location, scale, purpose
	Total project cost and total investment cost	Construction subsidy, total private project cost, total private investment cost
	Rate of return	Real rate of return: before tax/after tax Ordinary income: pre-tax/after tax
	Minimum revenue guarantee	Guarantee period, level of guarantee, condition of guarantee, guaranteed actual results
	User fee	Initial user fee, adjustment of user fee, other points to be concerned
	Project period	Construction period, operation period
	Competitive bidding	Number of bidders
2. Project progress	Solicited projects	Preliminary feasibility study, feasibility study, review by PIMAC, designation of potential projects and invitation of the private sector, designation of potential concessionaire, conclusion of the concession agreement and designation of concessionaire, approval for DEDPI, construction commencement/ stage of completion of construction in progress, completion of construction and the date of commencement of operation Announcement of dates and period required
	Unsolicited projects	Submission of initial proposal, review of initial proposal, notification of proposal contents, designation of potential concessionaire, conclusion of the concession agreement and designation of concessionaire, approval for DEDPI, construction commencement/stage of completion of construction in progress, completion of construction and the date of commencement of operations Announcement of dates and period required
3. Concessionaire	PPP Corporation	(e.g., _____[Name] Highway [Inc.])
	Composition of investors	Initial investment and investment after the first refinancing (company name, amount, and ratio) – Debt: loan from financial institutions, infrastructure bond, others – Equity: construction companies, operating companies, financial investors (banks, insurance companies, pension funds, infrastructure funds), others Refinancing: date of refinancing, reason for refinancing

continued on next page

Table *continued*

Category	Key Points
	Foreign investment (actual results or plan) Status of investment from pension fund and infrastructure fund
4. Financing and government subsidy conditions	Construction subsidy, private investment cost, internal rate of return, etc. – Estimation and actual results
5. Operating revenue	Demand volume, revenue amount, amount of revenue guarantee – Estimation and actual results
6. Key issues and solutions	Main points of contention and problems, and solutions
7. Future implementation schedule	–
8. Contact person and contact information	Name, title, phone/fax number, e-mail address, etc. Advisory company contact information

DEDPI = Detailed Engineering and Design Plan for Implementation, PIMAC = Public and Private Infrastructure Investment Management Center.

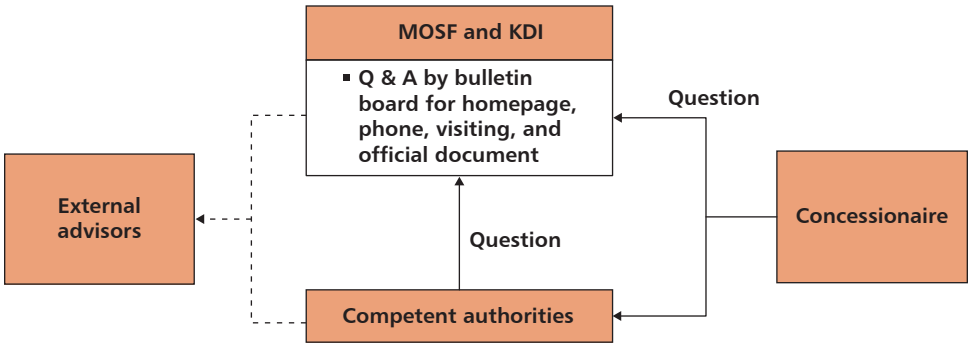
Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

a database. The MOSF and the Public and Private Infrastructure Investment Management Center (PIMAC) administer the system. The PPP project status report submitted to the competent authorities should include the items described in Table 5-2. Main components of this quarterly report are (i) financial status, (ii) project progress, and (iii) fiscal support related matters (Table 5-2).

When a particular issue occurs, the concession agreement is the guideline for resolving the problem and continuing the project. If the situation is not resolved based on the concession agreement or if the interpretation of the agreement is ambiguous, resolution should be sought with external professional advice or consultation with other authorities. Currently, the MOSF and PIMAC provide various supporting services to each competent authority through channels such as phone calls, questions and answers through official letters, visits and meetings, and questions and answers through the internet home page for different areas (e.g., legal, financial, technical matters, etc.) and project types (Figure 5-3). For effective response, questions are classified into categories of the PPP Act and PPP Enforcement Decree, PPP Basic Plan, implementation of build–transfer–lease (BTL), interpretation of request for proposal (RFP), evaluation of project proposals, matters on negotiation and concession agreement, BTL business in general and policy recommendation matters, and feedback on difficulties during operation.

The MOSF and PIMAC do not maintain different project management systems for different sectors such as roads, ports, railways, and environment. However, each competent authority does have different organizations, and this may result in different project management practices and system for each sector.

Figure 5-3 Question and Answer System for Public–Private Partnership Project

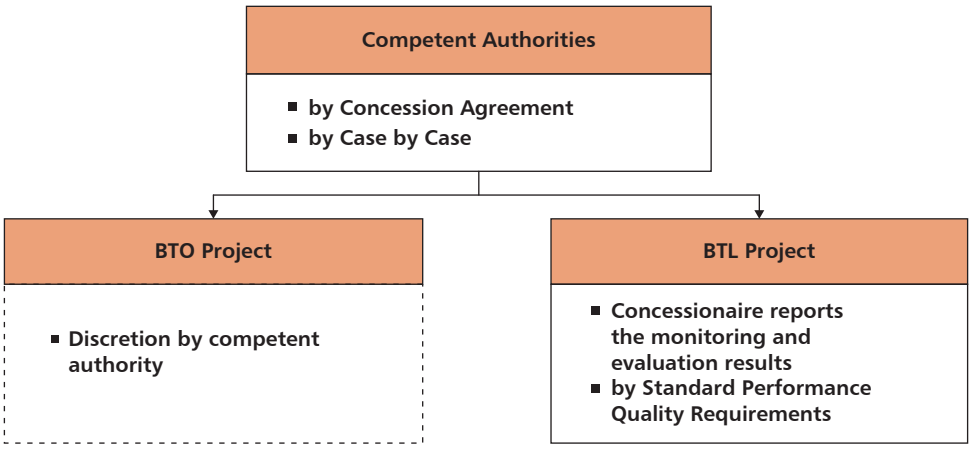


KDI = Korea Development Institute, MOSF = Ministry of Strategy and Finance, Q & A = question and answer.

Notes: First of all, must follow the Concession Agreement.
If there is ambiguity, consult with external advisors and other authorities.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Figure 5-4 Performance Evaluation by Project Types



BTL = build–transfer–lease, BTO = build–transfer–operate.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Performance Management

The demand risk for build–transfer–operate (BTO) projects is shared by the project company and the government through the mechanism of the minimum revenue guarantee (MRG) provision. For BTL projects, the risk is primarily assumed by the government (Figure 5-4). In this regard, BTL projects are similar to public investment projects where the government hires private service providers. The government payment for a BTL project would depend on availability and level of service quality (see Draft BTL Standard Concession Agreement); therefore, performance monitoring and evaluation of individual projects is essential.

Performance Management of Build–Transfer–Operate Projects

Performance management is less strict for a BTO project than for a BTL project. If there is a specific clause in the concession agreement, that would be followed. Otherwise,

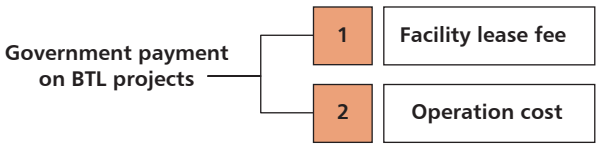
performance management would be at the discretion of the project company and the competent authority. The concession agreement is the basic framework and, even if operation and maintenance standards are separately established, the standards would only supplement the concession agreement. Currently, competent authorities establish maintenance standards to be followed during operation (PPP Enforcement Decree Article 25).[26] However, it is difficult to develop universally applicable maintenance standards since each project is supervised by a different competent authority.

Performance Management of Build–Transfer–Lease Projects

For BTL projects, the satisfaction survey and performance evaluation results are reflected in government payment to the project company.[27] The purpose of the performance evaluation is to check and assess whether operation and maintenance services are in accordance with the concession agreement and output specification. Payments will vary depending upon the performance evaluation results. A penalty is applied to the government payments to promote private sector accountability and operational performance. The facility operation performance is evaluated each year, and, if the agreed service levels are not met, a deduction is applied to the government payments. In other words, a facility that fails to meet operational performance plans receives a financial penalty. The government payment for BTL projects consist of facility leases and operational expenses. If the level of service (content and quality) falls short of what is stipulated by the concession agreement, a certain percentage can be deducted from the agreed government payment. On the other hand, if the level of service is recovered, a part of the deduction is returned as an incentive.

The BTL project uses a satisfaction survey and performance evaluation to control quality. The satisfaction survey is conducted by each project company and submitted to the competent authorities. Performance checks and evaluation are conducted monthly or quarterly as specified in the standard performance quality requirement,

Figure 5-5 Government Payment on Build–Transfer–Lease Projects



Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

[26] See Act on Private Participation in Infrastructure published by the Ministry of Strategy and Finance of Republic of Korea in 2009.
"Article 25 (Management and Maintenance of Facilities),
(1) The Competent Authority may establish and apply standards for the management and maintenance of the facilities under subparagraphs 1 through 3 of Article 4 of the Act during the free use period or ownership and profitable use period. <Amended, Mar. 8, 2005>
(2) The Concessionaire of the facilities under paragraph (1) above shall notify a management and maintenance plan to the Competent Authority in accordance with the terms as determined by the Concession Agreement."

[27] Public and Private Infrastructure Investment Management Center. 2005. *Guidelines for Formulation of Request for Proposals for BTL Projects.* Seoul; Public and Private Infrastructure Investment Management Center. 2007. *Output Specifications for School Facility BTL Projects.* Seoul.

Box 5-1 Japanese Case: Differentiated Service Payment Based on Performance Evaluation Results

1. Criteria for Evaluation

If monitoring results show that the operator's maintenance work is below standard levels and it is confirmed that there is no improvement, a penalty point of 1 per day will be accumulated from the following day for the payment period.

- However, if the substandard maintenance has caused a stop to the facility's usage, 2 points per day penalty will be given.

2. Decisions of Deductions, etc.

- A business year is divided into four quarters.
- Each quarter is a payment period that requires evaluation and measures.
- According to the total number of points accumulated for each payment period, the following measures will be taken:
  - 0–2: no measures, such as deduction of payment
  - 3–5: 5% deduction from government payment
  - 6–10: suspension of maintenance fee payment, 90% payment
  - 11–15: suspension of maintenance fee payment, 85% payment
  - 16–20: suspension of maintenance fee payment, 80% payment
  - 21–29: suspension of maintenance fee payment, 75% payment
  - If accumulated penalty is more than 6, the payment of maintenance fee is suspended. However, if the following quarter accumulates penalties of 2 or less, the suspended maintenance fee for this period will be paid in the following period after the multiple for the points are applied.
  - However, interest is not included and the multiple will be increased by 5% each if the suspension continues.
  - Example: If there is a penalty point of 6 for past 2 consecutive quarters, but a penalty point of the current quarter is 1.
  - Payment amount = two quarters before × (90%–5%) + previous quarter × 90% + current quarter

Source: Ministry of Strategy and Finance. 2004. 12. *Case Studies on PPP Projects of the United Kingdom and Japan and Studies on BTL Project Model Development*, Seoul.

and the results are submitted. The standard performance quality requirement includes general matters on the project, including requirement levels at the design phase (general, architectural, civil engineering, machine equipment design, basic performance demanded in the detailed design, basic performance requirements of material and technique, design scope, others), requirements at construction stage (planning, quality, process, safety management, environmental regulations, and completion checking), operation and maintenance requirements (operation, maintenance, checkups, recovery, repair, and other requirements for each project), and requirements for the performance checking, evaluation, and results utilization phase (Table 5-3).

For fair performance evaluation, the competent authority must form a performance evaluation committee consisting of government officials, the project company (SPC or operator), and experts of the relevant field. The project company should be allowed to first submit a self-evaluation report, which is reviewed by the competent

Table 5-3 Performance Check by Entity

Category	Performance Measuring and Reporting	Performance Check
Time	• Once every month (monthly business report): within first 10 days of following month	• Regular check: within 7 days after receiving monthly report • Random check: at random times
Body	• Project company	• Competent authority
Document	• Standard Performance Quality Requirement • Operation and Maintenance Plan	• Standard Performance Quality Requirement • Operation and Maintenance Plan • Performance Measurement Report (monthly report)
Scope	• The level of operation and maintenance provided by operator	• Whether provided operation and maintenance level satisfies requirement
Method	• Self-measurement • Prepare report of measurement results	• Check documents and facts supporting report • Visit facility, supervise work • Demand for data and/or explanation, on-site (demand financial status report if necessary)
Additional measures when necessary	• Check measurement devices • Sampling test • Customer satisfaction survey	• Check measurement device • Sampling • Unannounced on-site check • Receive complaints from users • Customer satisfaction survey
Output and follow-up	• Performance Report (monthly report) • Self-correction if necessary	• Performance Confirmation Result • Corrective order if performance fails to be requirement • Contract termination if failure continues

Source: PIMAC, KDI. 2006. September. *Guidelines for Formulation of Request for Proposals for BTL Projects*. Seoul.

Table 5-4 Example of Service Satisfaction Evaluation: Evaluation Criteria for Customer Satisfaction

Grade		Evaluation Criteria	Weight
Grade	Score		
A	10	If 100% of respondents say service is "very satisfactory"	0.3 (example)
B	9	If 80% or more of respondents say service is "very satisfactory" and 20% or less say "satisfactory"	
C	8	If 50% or more of respondents say service is "very satisfactory" and 20% or more say "satisfactory"	
D	7	If 50% or more of respondents say service is "unsatisfactory"	

Source: PIMAC, KDI. 2006. September. *Guidelines for Formulation of Request for Proposals for BTL Projects*. Seoul.

Table 5-5 Example of Service Satisfaction: Evaluation Criteria for Customer Satisfaction Survey

	Grade	Score	Incentive and Penalty	Evaluation Item
Total Score	A	9 +	100% of service payment.	Availability (weight 0.4) Safety and durability (weight 0.4) Service satisfaction (weight 0.2) Grade D if no service is being provided. ※ assuming quarterly payments
	B	8 +	○○% of service payment. If following quarter's total grade is A, ○% of previous quarter's deduction is added.	
	C	7 +	○○% of service payment. If following quarter's total grade is A, ○% of previous quarter's deduction is added.	
	D	Less than 7	Suspend payment of service payment. If following quarter's total evaluation grade is A, ○% of previous quarter's deduction is added.	

Source: PIMAC, KDI. 2006. September. *Guidelines for Formulation of Request for Proposals for BTL Projects.* Seoul.

authority. The performance evaluation committee can decide whether to conduct an additional independent evaluation by a third party.

Each evaluation item (e.g., availability, safety and durability, service satisfaction, etc.) is given an evaluation grade (e.g., grade A–D) and then a score according to the grade. Weights are given to evaluation items (using methods such as the analytic hierarchy process) to calculate final evaluation result (Table 5-4 and Table 5-5).

Stakeholder Survey on the Performance of Public–Private Partnership Projects

Stakeholder Survey on Build–Transfer–Operate Projects

Outline of survey

In 2006, the Korea Development Institute (KDI) conducted a survey of major stakeholders of BTO road projects currently in operation, such as competent authorities, project companies, and experts, about user satisfaction, project performance, and other issues. To find out the level of user satisfaction, interviews were conducted with 200 users of three BTO toll roads. An e-mail survey was conducted with 200 users, and a face-to-face survey was done with 200 public officials, project company employees, and experts related to BTO projects.

Survey results

Users. Asked about their perception of the expansion of infrastructure facilities using private capital, 38% of users replied positively; 43%, neutral; and 19%, negatively (Figure 5-5). Out of the positive respondents, 44.6% cited as reasons the early expansion of infrastructure facilities; 33.8%, the reinvigoration of business by providing alternative investment; and 20.3%, the opportunity to demonstrate the private sector's creativity

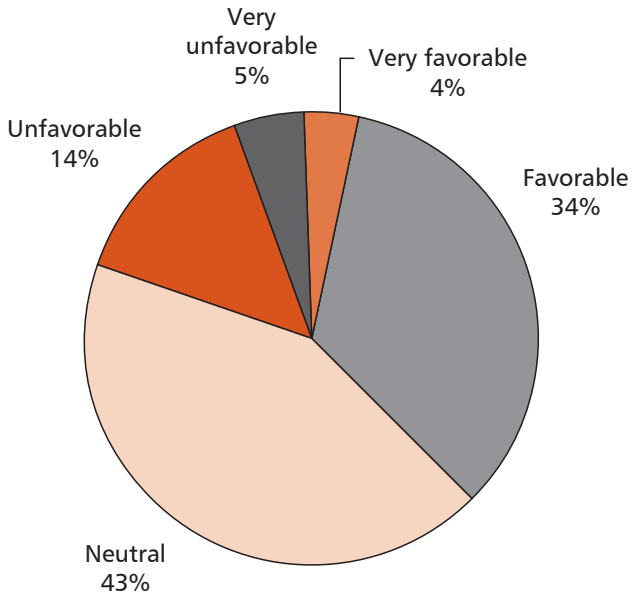
Table 5-6 Outline of Survey on Build–Transfer–Operate Projects

Respondent Groups	Number of Respondents by Group
Users	200 owner-drivers interviewed – 100 users of Incheon International Airport Expressway – 50 users of Cheonan–Nonsan Expressway – 50 users of Busan–Daegu Expressway
Competent authorities	70 public officials
Project companies	74 private company employees
Experts	53 technological, financial, and legal experts related to build–transfer–operate projects as well as fellows at related research institutions

Note: Survey conducted from November to December 2006.

Source: Korea Development Institute. 2006. Survey on the Performance of BTO Projects. Seoul.

Figure 5-6 Survey of Users: Perception about Infrastructure Expansion by Utilizing Private Capital



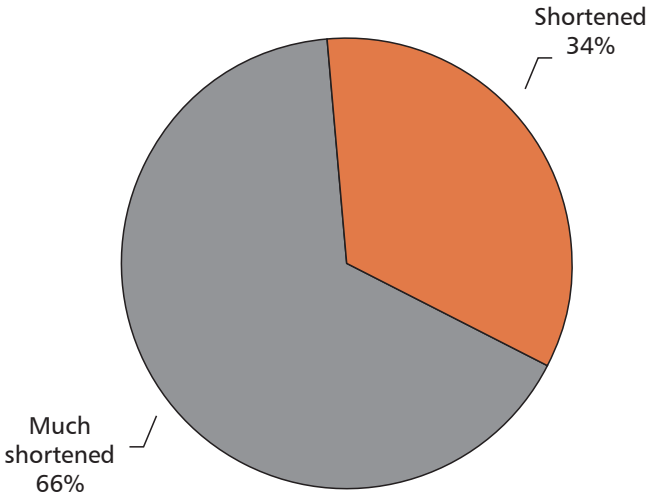
Source: Korea Development Institute. 2006. Survey on the Performance of BTO Projects. Seoul.

and efficiency. Among the negative respondents, 78.9% opposed it for fear of higher user fees.

On user satisfaction, despite the toll level being somewhat higher than those for government-financed roads, users were largely satisfied with the road service providers as well as the visibility and accuracy of the signboards on road surface conditions. Also, most of those surveyed (83.5%) said they would recommend the use of BTO roads, citing as reasons the shortened travel time (82.4%) and excellent road conditions (6.7%).

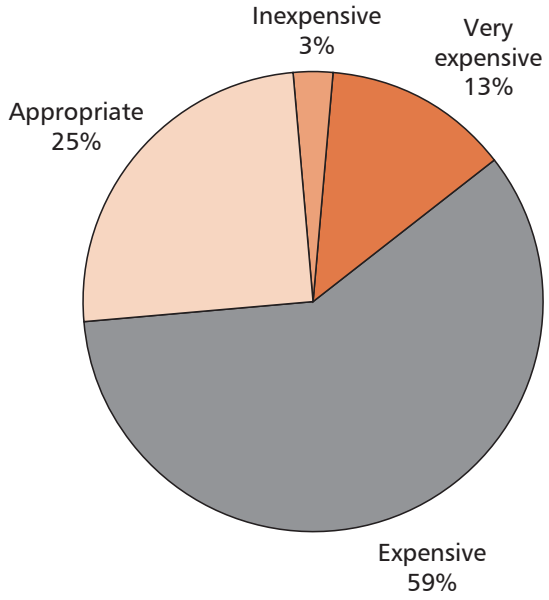
As to whether the use of BTO roads shortened travel time compared with alternative roads, all of the respondents said it shortened travel time, either somewhat or very much. About the appropriateness of the tolls considering the saved travel time

Figure 5-7 Survey of Users: Do Build–Transfer–Operate Roads Shorten Travel Time Compared to Alternative Roads?



Source: Korea Development Institute. 2006. Survey on the Performance of BTO Projects. Seoul.

Figure 5-8 Survey of Users: Are the Toll Levels on Build–Transfer–Operate Roads Appropriate?

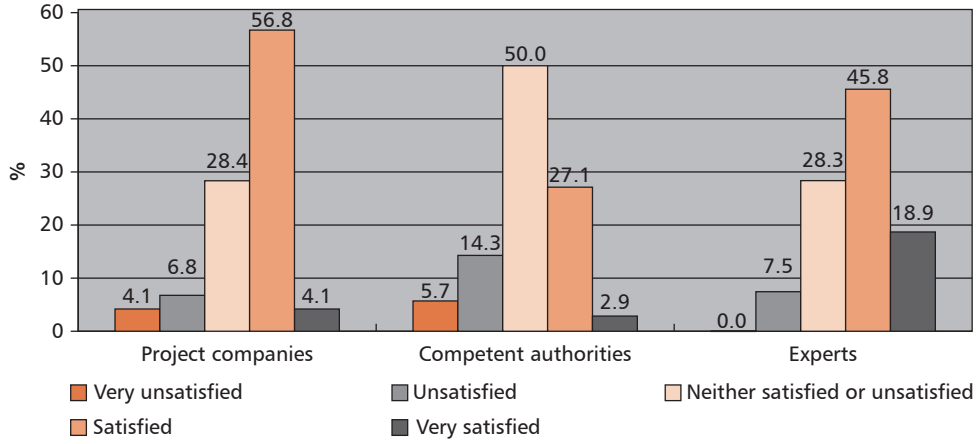


Source: Korea Development Institute. 2006. Survey on the Performance of BTO Projects. Seoul.

and fuel costs from using BTO roads, meanwhile, about 72% of respondents said BTO road tolls are somewhat or far more expensive than those of alternative roads. In view of such a result, it can be said that, although BTO roads are relatively costlier in terms of user fees, people use them because of the shorter travel time and reduced fuel expenses.

Competent authorities, project companies, and experts. On the performance of BTO projects, project companies and expert groups replied that they were largely satisfied (61%–67%), while only 30% of competent authorities said they were satisfied.

Figure 5-9 Survey of Competent Authorities, Project Companies, and Experts: Satisfaction Level with the Performance of Build–Transfer–Operate Projects



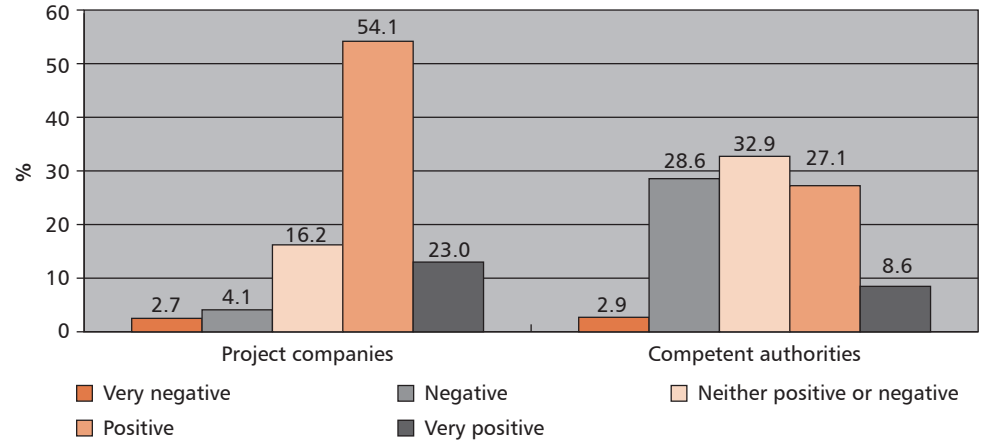
Source: Korea Development Institute. 2006. Survey on the Performance of BTO Projects. Seoul.

On the question whether BTO projects have contributed to the timely expansion of deficient infrastructure, 94.6% of project companies and 89.5% of experts replied positively, while 60% of competent authorities gave positive responses.

As to whether the private sector has sufficiently demonstrated its creativity and efficiency in conducting BTO projects, 40.5% of project companies and 58.5% of experts said it has made a contribution in this regard, while only 31.4% of competent authorities thought so, showing relatively lower percentage of positive respondents.

While 77.1% of project companies said that BTO projects attained better value for money (VFM) in comparison with government-financed projects, the largest portion

Figure 5-10 Survey of Competent Authorities and Project Companies: Did the Build–Transfer–Operate Projects Improve Value for Money?



Source: Korea Development Institute. 2006. Survey on the Performance of BTO Projects. Seoul.

of officials at competent authorities (32.9%) regarded the VFM performance as about the same, 35.7% had a positive appraisal of VFM, and 31.5% had a negative appraisal.

As seen above, a perception gap was found between project companies and competent authorities about the performance of BTO projects. Chances are high that project companies feel satisfied with the performance of BTO projects because they produce high, stable income due to construction subsidies, construction profits, and MRG provisions. On the other hand, there seems to be motivation for the officials at competent authorities to appraise the results of BTO projects relatively lower, because of the financial burdens to pay the construction subsidies and MRG, as well as civil complaints and audits resulting from more expensive tolls as compared to government–financed roads.

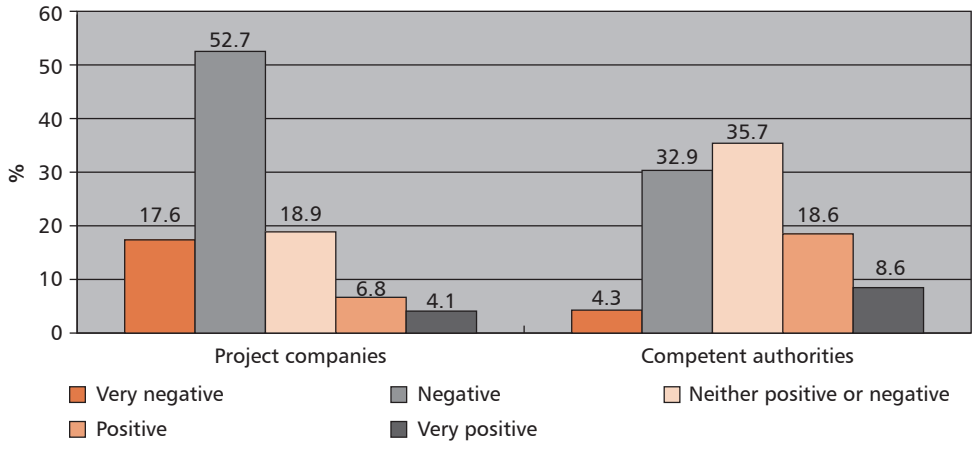
In response to a question about whether project risks have been properly allocated between competent authorities and project companies, a wide gap of perception was found among different groups (Figure 5-11). While 37.2% of competent authorities and 35.9% of expert groups replied that the risks have not been properly allocated, 70.3% of project companies had a negative reply, indicating the risks have not been properly allocated from the standpoint of project companies.

As to whether respondents think BTO projects are attaining the level of benefits expected in the planning stage, they showed largely positive appraisals with 44.6% of project companies and 42.9% of officials at competent authorities answering "good" or "excellent," respectively.

Conclusion

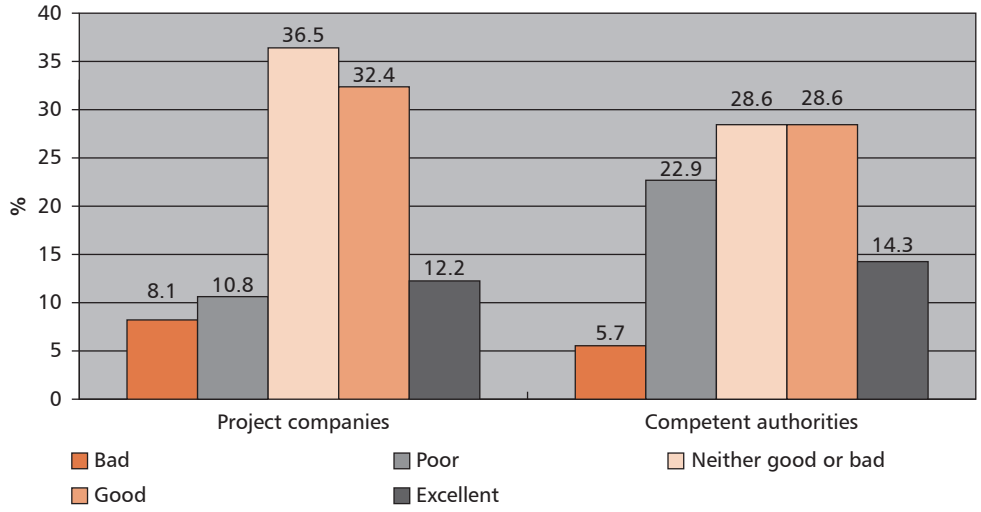
The results of this survey show that different groups of stakeholders have different perceptions about the performance of BTO projects. In the survey of users, those who use BTO roads were found to be largely satisfied with the services despite the higher tolls than for government-financed roads. Although the BTO roads provide shorter

Figure 5-11 Survey of Competent Authorities and Project Companies: Are the Risks and Responsibilities of Build–Transfer–Operate Projects Properly Distributed?



Source: Korea Development Institute. 2006. Survey on the Performance of BTO Projects. Seoul.

Figure 5-12 Survey of Competent Authorities and Project Companies: Are Build–Transfer–Operate Projects Attaining the Expected Benefits?



Source: Korea Development Institute. 2006. Survey on the Performance of BTO Projects. Seoul.

travel time compared with alternative roads, the reduction of tolls appeared to be the most important task to increase user satisfaction levels. Accordingly, the level of tolls should be given top priority in implementing BTO road projects in the future.

The survey of project companies, competent authorities, and experts demonstrated a perception gap between project companies and competent authorities on the performance of BTO projects. While project companies and experts have a very positive perception of the results of BTO projects, competent authorities have a somewhat more negative perception. This can be attributed to the financial burdens caused by subsidies and MRGs and the additional administrative burdens from higher tolls and outside auditing and civil complaints.

Stakeholder Survey on Build–Transfer–Lease Projects

Outline of survey

To appraise the satisfaction level with BTL projects, PIMAC conducted a survey of major stakeholders (users, competent authorities, and project companies) of some BTL school projects that began operation in 2007.

The questionnaire for users focused on how much they were satisfied with the quality of construction and operation of the facilities involved, while that for competent authorities and project companies focused on how they perceived the performances of projects, the attainment of VFM, and the necessity for monitoring.

Survey results

Students. As survey results show, respondents expressed high satisfaction level in all aspects of design, construction, maintenance, and management. None of them expressed lower-than-average level of satisfaction on the external appearances of

Table 5-7 Outline of Survey on Build–Transfer–Lease Projects

Respondent Groups	Number of Respondents by Group
Students	117 students in 4 build–transfer–lease schools
Principals, administrative chiefs	69 educators in 38 build–transfer–lease schools
Competent authorities	33 officials responsible for pertinent projects at educational offices throughout the country
Project companies	28 employees of project companies (operators)

Note: Survey was conducted in August 2007.

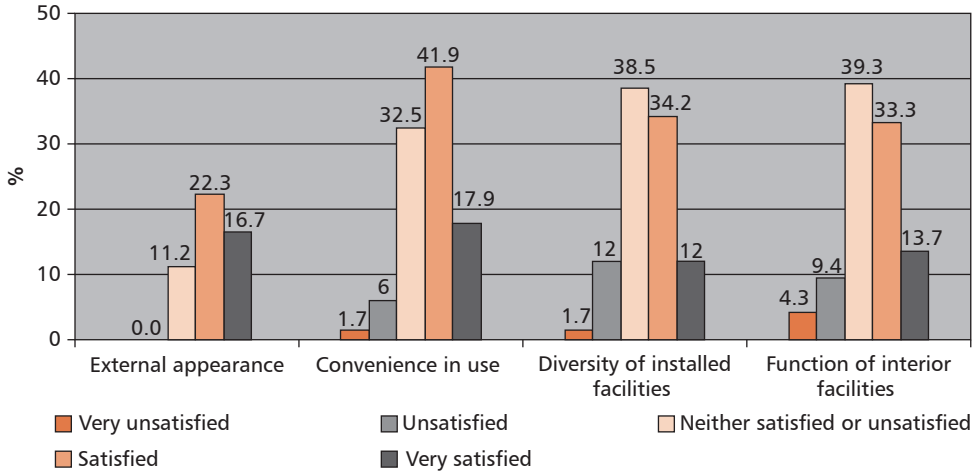
Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects.* Seoul: PIMAC, KDI.

the buildings. Most of them expressed above-average levels of contentment with the convenience in use, diverse furnishings and functional aspects of interior facilities, including classrooms and libraries. In the maintenance and management aspects of facilities, only 12%–19% surveyed students showed dissatisfaction level with interior environment, cleaning and sanitation, as well as safety and security management.

Principals and administrative chiefs. The surveyed principals and administrative chiefs expressed higher than average satisfaction level with the BTL projects' design and construction; 82.6% of respondents showed satisfaction with the external appearances of the buildings; 73.9% were satisfied with the convenience in use; 55%, with the diversity of installed facilities; and 58%, with functions of interior facilities.

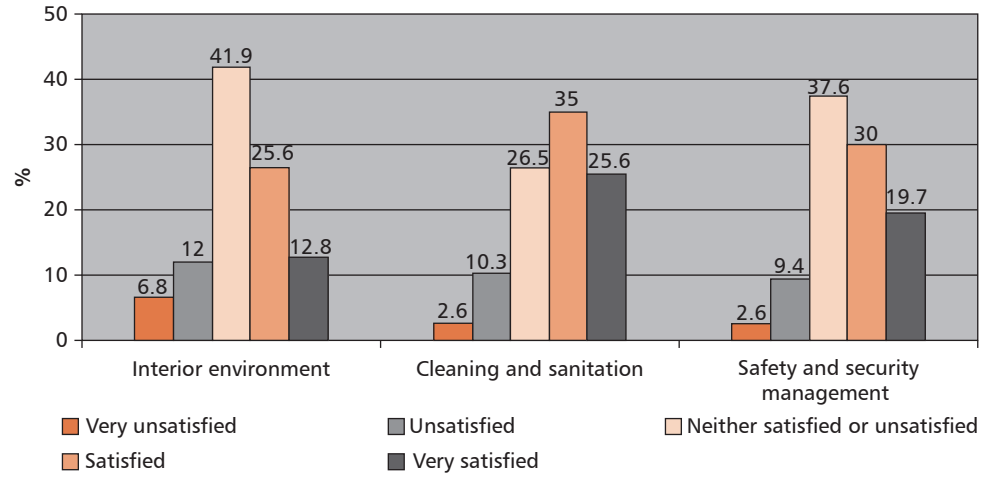
Regarding respondents' views of facilities' maintenance and management, 73.9% showed satisfaction with interior environment; 87%, with cleaning and sanitation; and 73.9%, with safety and security management, showing satisfaction levels as high as those for design and construction.

Figure 5-13 Survey of Students: Satisfaction Level with Design and Construction of Build–Transfer–Lease Schools (%)



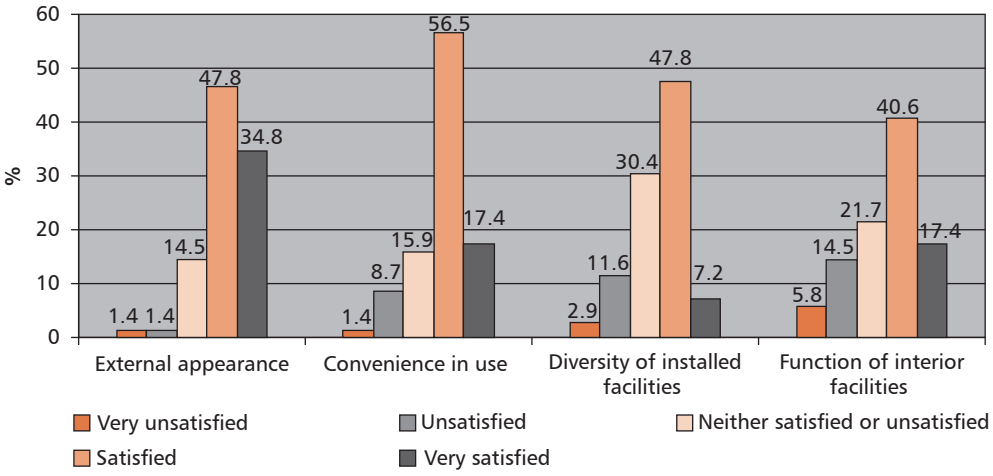
Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects*. Seoul: PIMAC, KDI.

Figure 5-14 Survey of Students: Satisfaction Level with Maintenance and Management of Build–Transfer–Lease Schools (%)



Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects*. Seoul: PIMAC, KDI.

Figure 5-15 Survey of Principals and Administrative Chiefs: Satisfaction Level with Design and Construction of Build–Transfer–Lease Schools (%)

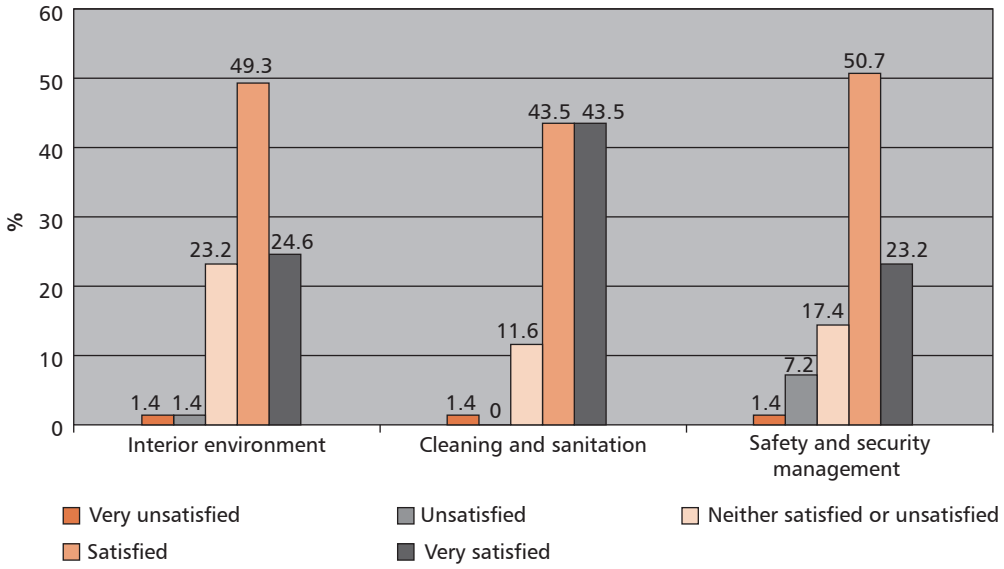


Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects*. Seoul: PIMAC, KDI.

Results of the comparative surveys of principals and administrative chiefs show that the satisfaction level was much or somewhat higher with the BTL schools than with the government-financed schools.

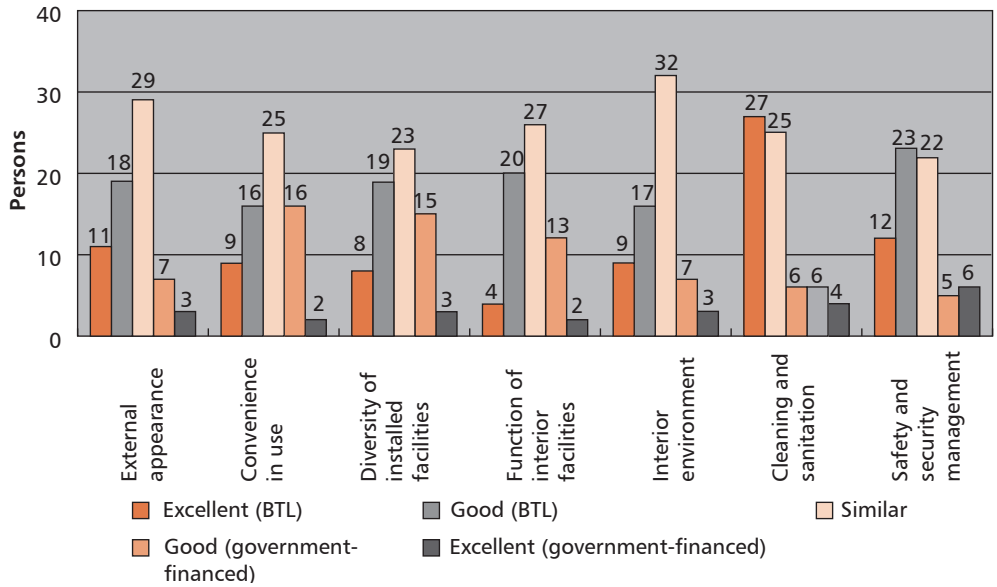
Asked to comment on future implementation of BTL school projects, the respondents cited the function of interior facilities, the convenience in use, and the diversity of installed facilities as the most important areas. The desire for diversity in installed

Figure 5-16 Survey of Principals and Administrative Chiefs: Satisfaction Level with Operation, Maintenance, and Management of Build–Transfer–Lease Schools (%)



Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects.* Seoul: PIMAC, KDI.

Figure 5-17 Survey of Principals and Administrative Chiefs: Satisfaction Level with Build–Transfer–Lease Compared to Government-Financed Schools (number of people)



BTL = build–transfer–lease.

Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects.* Seoul: PIMAC, KDI.

facilities is more likely to be met by BTL projects than by government-financed schools. The survey shows the importance of incorporating the private sector's creativity and efficiency in project planning and facility design as well as the need for advocating for the introduction of diverse facilities.

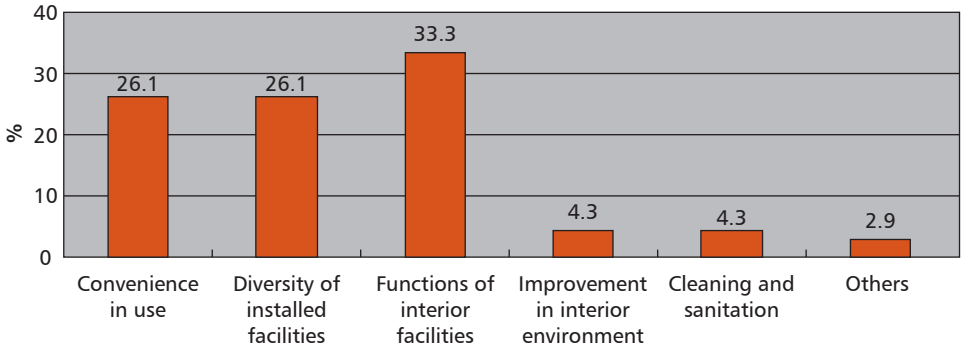
Competent authorities and project companies. A direct survey of competent authorities and project companies was also conducted about the performance of BTL projects, such as the projects' attainment of VFM and contribution to early expansion of facilities; a frequency analysis was performed based on the survey. Asked to assess the overall performance of BTL projects, only 21.3% of respondents showed negative satisfaction levels, reflecting their contentment with the overall outcome of BTL projects.

Asked whether ongoing BTL projects have provided the level of benefits expected in the planning stage, 42% of respondents said the results were better than average; as to the improvement of VFM from BTL projects, 67% replied either excellent, good, or fair. Asked about BTL projects' contribution to the early expansion of facilities, 98.4% answered either excellent, good, or fair, leading to the conclusion that BTL projects are contributing to the early expansion of facilities and the improvement of VFM, as intended.

Officials at competent authorities who have experienced both BTL schools and government-financed schools were asked to compare performance of the two types of projects in two areas—facilities and operation. As a result, 63.7% and 72.8% of officials replied that the BTL schools are better regarding facilities and operations, respectively, confirming the superiority of BTL schools over government-financed ones. In particular, 36.4% of the officials said BTL schools are much superior in terms of operations, indicating relevant officials at competent authorities have a favorable appraisal of BTL projects' operation.

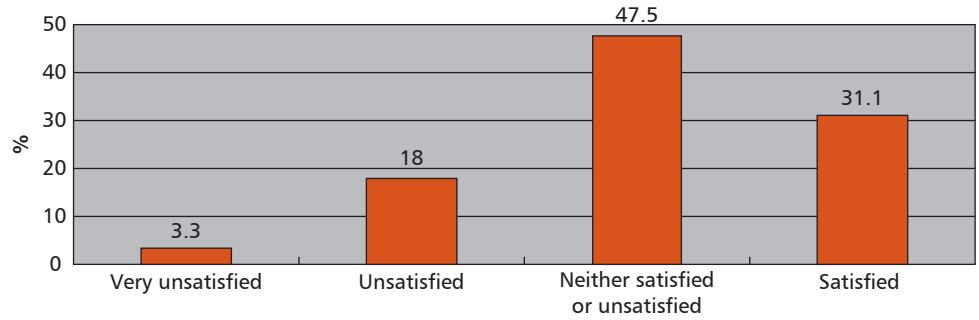
For the successful operation of BTL projects, it is vital to maintain a smooth cooperative relationship between competent authorities and project companies. With respect to such cooperation, 39.3% of respondents said cooperation was either good or very good, indicating the original objective of the PPPs is being fulfilled.

Figure 5-18 Survey of Principals and Administrative Chiefs: Important Points in Implementing Build–Transfer–Lease Projects (%)



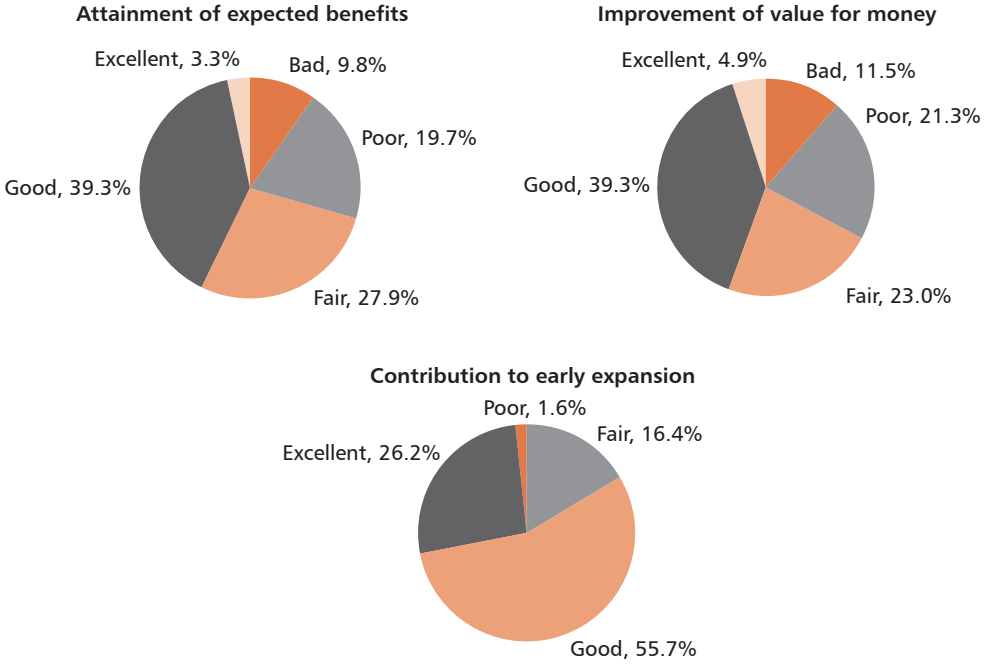
Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects.* Seoul: PIMAC, KDI.

Figure 5-19 Survey of Competent Authorities and Project Companies: Appraisal of Overall Performance of Build–Transfer–Lease Projects (%)



Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects.* Seoul: PIMAC, KDI.

Figure 5-20 Survey of Competent Authorities and Project Companies: Appraisal of the Performance of Build–Transfer–Lease Projects (%)

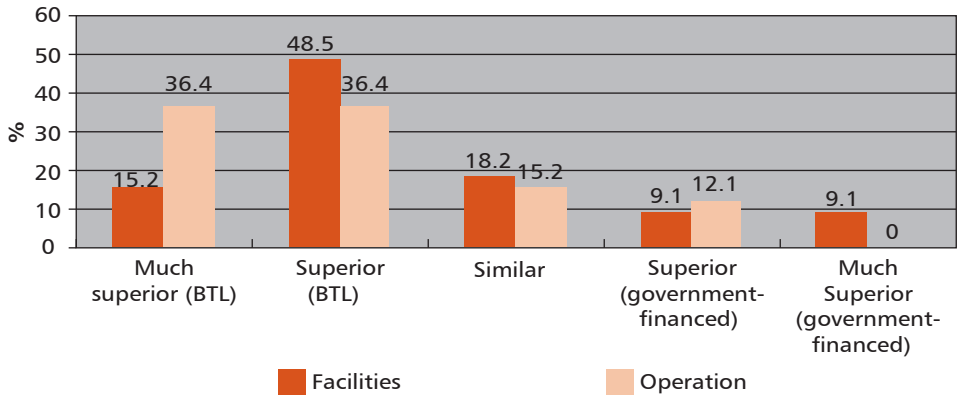


Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects.* Seoul: PIMAC, KDI.

Conclusion

Results of the surveys of BTL projects' stakeholders show that the satisfaction level was high among students, as well as principals and administrative chiefs, regarding school construction and operation. There were also positive appraisals regarding the attainment of the purposes of the BTL projects and VFM. It is noteworthy that the positive appraisal of the operations indicates that this new business area of service purchase-type project is successfully taking root in the Republic of Korea.

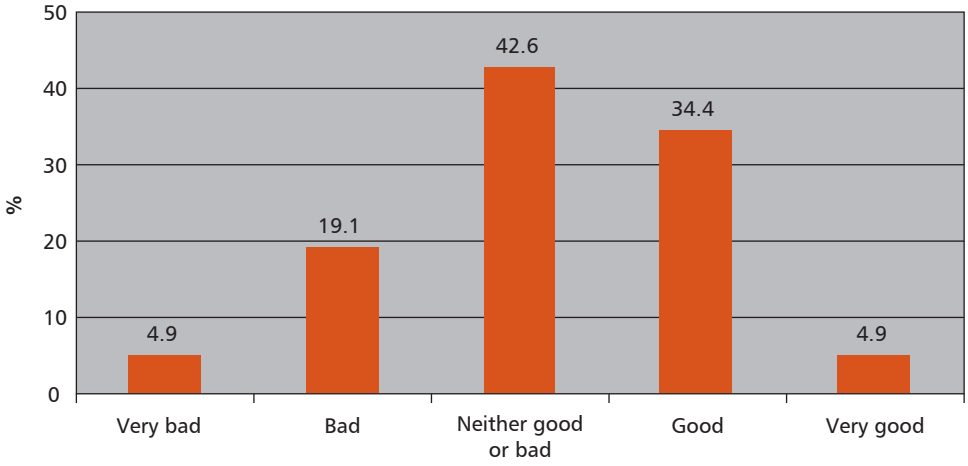
Figure 5-21 Survey of Competent Authorities: Comparison of Build–Transfer–Lease Schools with Government-Financed Schools (%)



BTL = build–transfer–lease.

Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects.* Seoul: PIMAC, KDI.

Figure 5-22 Survey of Competent Authorities and Project Companies: Cooperation with Counterparts (%)



Source: Hyeon Park et al. 2007. *Study on Performance Evaluation and Development Strategy of BTL Projects.* Seoul: PIMAC, KDI.

Refinancing

Refinancing is the process of changing the project consortium's equity structure, investment share, debt financing condition, and so forth. Refinancing clauses were formulated in Section 4-4 of the 2004 Basic Plan. Then, in 2007, PIMAC formulated the Guidelines for Refinancing in order to clarify the details of the refinancing process.

Characteristics of Refinancing

In the Republic of Korea, refinancing is primarily focused on equity. Upon completion of construction, construction companies generally want to exit the project by selling their shares. Also, because the minimum equity requirement of 25% during construction

Table 5-8 Characteristics of Public–Private Partnership Project Refinancing: Republic of Korea vs. the United Kingdom

Characteristics	Republic of Korea Regulation driven	United Kingdom Market driven
Driving force	• Regulation: Minimum equity ratio (Basic Plan Section 4. Financing) – construction period: 25% or more – operational period: 10% or more • Construction companies, initial investors, want to sell their equity and exit the project after construction completion in order to carry out other projects, while financial investors prefer low-risk project.	• Risk change: Risk diminishes after construction period. • No regulation of equity ratio.
Type of refinancing	• Change in capital structure. • Change in debt and dividend conditions (allowed by debt holders).	• Change in composition of equity holders and debt conditions.

Source: Ministry of Strategy and Finance, Partnerships UK.

period is reduced to 10% during the operational period, shareholders want to convert a part of their equity into subordinated debt upon completion of construction. Therefore, refinancing happens in two ways: a change of shareholders and conversion of equity into subordinated debt. Table 5-8 compares the PPP refinancing practices in the Republic of Korea and in the United Kingdom where refinancing is mainly related to debt. Table 5-9 shows the refinancing details of selected projects in the Republic of Korea.

Sharing Refinancing Gains

According to the PPP Act, the competent authority is supposed to share the refinancing gains equally with the project company. The competent authority is directed to use its share of the refinancing gains to lower the user fee as a priority. However, if the competent authority finds that lowering the user fee is deemed inappropriate considering the characteristics of the individual project, lowering the MRG level or reducing the concession period is an alternate way to use the refinancing gains. Table 5-10, Figure 5-22, and Table 5-11 show examples of competent authorities using the refinancing gains from PPP projects to reduce the MRG level.

Case Study of Project X. Project X was the first project in which the government and private investors shared the refinancing gain. The government and the private investors agreed to share the refinancing gain by lowering the MRG level from 90% to 82%. Refinancing gains were estimated by the increased amount of investors' expected internal rate of return (IRR) calculated in the post-refinancing financial model against the investor's expected IRR calculated in the base case financial model. Table 5-12 shows the details of refinancing gain calculation.

Source of Refinancing Gains

Cash flow timing effect. By converting equity into subordinated debt, the timing of cash flow is advanced and the tax liability is reduced because the nature of cash flow to shareholders changes from dividend to interest (Figure 5-24). Additionally, such changes bring the timing of cash flow forward. From the shareholders' viewpoint,

Table 5-9 Refinancing Details of Selected Public–Private Partnership Projects in the Republic of Korea (%)

				Project A	Project B	Project C	Project D
Year of Refinancing				2002	2003	2003	2004
Equity holders (%)	Before refinancing	Construction co.		100.0	100.0	100.0	100.0
	After refinancing	Construction co.		0.0	0.0	0.0	0.0
		Operating co.		0.0	0.0	0.0	0.0
		Fin. Inv.	Bank	0.0	0.0	2.1	19.7
			Insurance co.	0.0	0.0	28.7	0.0
			Pension	0.0	0.0	45.1	20.3
			Infra Fund	100.0	100.0	24.1	60.0
Capital re-structuring (%)	Before refinancing	Equity		56.0	38.0	29.6	38.1
		Debt	Subordinated	0.0	0.0	0.0	0.0
			Senior	44.0	62.0	70.4	78.2
			Total	100.0	100.0	100.0	100.0
	After refinancing	Equity		8.0	7.0	15.0	17.1
		Debt	Subordinated	16.0	17.0	14.6	21.7
			Senior	76.0	76.0	70.4	61.3
		Total		100.0	100.0	100.0	100.0
Reduced minimum revenue guarantee level				–	–	90% → 80%	90% → 82%

co. = company, Fin. Inv. = financial investment.

Sources: Concession Agreements and Annual Audit Report.

Table 5-10 Uses of Refinancing Gains into Lowering Minimum Revenue Guarantee Level (%)

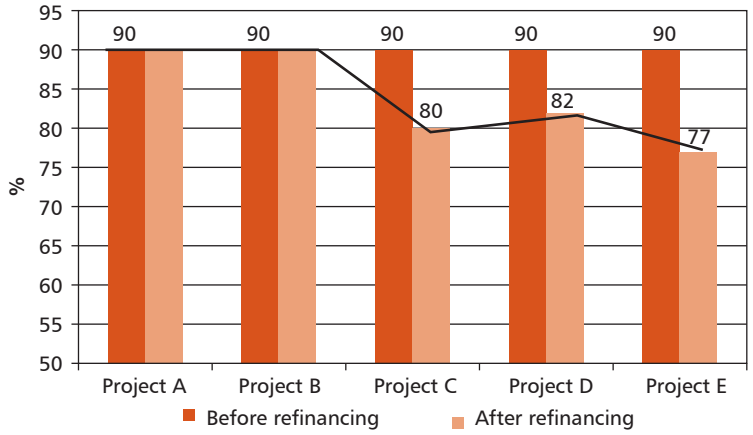
		Project A	Project B	Project C	Project D	Project E
Year		2002	2003	2003	2004	2008
Changes in minimum revenue guarantee	Before refinancing	90	90	90	90	90
	After refinancing	90	90	80	82	77

Source: Internal Data from the PIMAC, KDI.

since the dividend of capital is small and has many restrictions, cash flow in the form of interest payment is more easily paid out.

Corporate tax saving effect. Shareholders can expect more definite cash flow by introducing subordinated debt. The cost of interest for subordinated debt decreases profit on the financial statement, which reduces corporate tax. In the case of Project X, refinancing reduced corporate tax by W51.7 billion in terms of present value. Since

Figure 5-23 Uses of Refinancing Gains into Lowering Minimum Revenue Guarantee Level



Source: Internal data from PIMAC, KDI.

Table 5-11 Uses of Refinancing Gains into Lowering Redemption Level

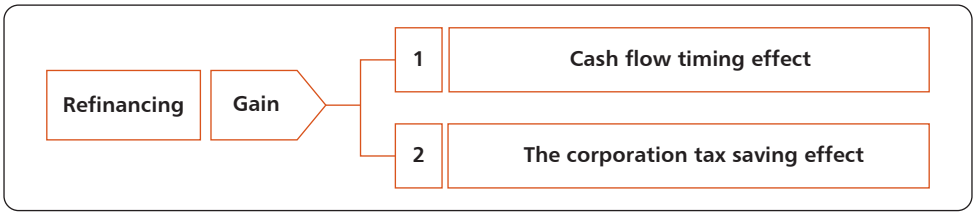
Period (years)		Project C 20 years	Project D 20 years	Redemption amount –
Redemption	Before	Over 110%	Over 120%	100%
	After	80%–90%	82%–92%	40% of Surplus (A)
		90%–100%	92%–102%	60% of Surplus (B)
		100%–110%	102%–110%	80% of Surplus (C)
		Over 110%	Over 110%	100% of Surplus (D)

Table 5-12 Calculation of Refinancing Gain for Project X

Refinancing Gain	Increase in the expected profit for investors
Base case financial model	Prepared to decide overall project implementation conditions at the time of concluding concession agreement
Pre-refinancing financial model	The estimated amount of cash flow reflecting future expected price of goods and cash flows, such as operating revenue and costs up to the application date for refinancing. The estimated amount of future cash flows is derived using the following method: – (Example) The operating revenue and costs (excluding corporate tax) are the fixed operating revenue and costs (excluding corporate tax) estimated in the concession agreement to which the inflation rate as presented during the refinancing process has been applied. Corporate tax costs are estimated again and reflected at the time of refinancing
Post-refinancing financial model	By reflecting the financing plan of the pre-refinancing financial model.

Source: Public and Private Infrastructure Investment Management Center. 2009. *Guidelines for Calculating Refinancing Gain*. Seoul.

Figure 5-24 Decomposition of Refinancing Gain



Source: Public and Private Infrastructure Investment Management Center. 2009. *Guidelines for Calculating Refinancing Gain*. Seoul.

the reduction of corporate tax is a loss for the government, it may be argued that the tax reduction part should be returned to the government in full.

Going forward, many projects are expected to be refinanced as they start operation. Since refinancing is a complicated process, refinancing negotiation requires expertise and needs detailed guidelines to satisfy both sides. The refinancing guidelines need to provide clear criteria to many issues to mitigate conflicts. Table 5-13 lists the check lists in calculating refinancing gains.

Refinancing Guideline

Since 2004, the PPP Basic Plan has been in effect. The Basic Plan defines refinancing as an act of maximizing the expected profit of the investors through changing the project's equity structure, investment share, and debt financing conditions. In 2007, PIMAC formulated the Guideline for Refinancing in which the definition of refinancing, the basic principles for refinancing, and methods of sharing gains are provided. The document includes explanations and examples for each provision to clarify the refinancing rules, mainly concerning estimation of refinancing gains.

Table 5-13 Checklists in Calculating Refinancing Gains

• Definition of equity: paid-in vs. total (reflecting the earnings or losses)
• Does refinancing include change of equity holders?
• What kind of debt condition change is defined as refinancing? How much change is "change"?
• Is refinancing applicable to all projects? (minimum project size, i.e., W50 billion)
• Is refinancing applicable to projects without subsidy and minimum revenue guarantee?
• Is 50:50 sharing rule universal? (differentiation of sharing ratio depending upon the project phase)
• Baseline financing condition: The actual financial contractual condition vs. concession agreement
• Does it reflect operating revenue in financial model? estimated amount vs. performance
• How should the refinancing fee be handled?
• Can there be a claim on corporate tax reduction?
• How should the inflation rate be handled?
• How should the interest rate be adjusted? (i.e., switch from floating to 3-year fixed)
• How should the refinancing gain be utilized?

Source: Public and Private Infrastructure Investment Management Center. 2009. *Guidelines for Calculating Refinancing Gain*. Seoul.

The PIMAC document defines refinancing as changes in capital structure that includes capital reduction, debt increase, switch of common share to preferred share, etc. In addition, changes in debt conditions and changes in equity holders of more than 5% of the total equity are regarded as refinancing.

According to the Basic Plan, the concessionaire is required to notify the competent authority about refinancing plans regardless of whether the government will share in refinancing gain. The Basic Plan requires 10% of the equity ratio in operational period and a higher ratio in the construction period. This ratio is stated in the concession agreement. The Guideline for Refinancing refers to equity as total equity, unless the competent authority determines otherwise. Also in measuring refinancing gain, the guideline assumes that refinancing will be conducted at the best executable market prices and conditions. If the actual refinancing terms are not executed at the best executable conditions, then the hypothetical terms will replace the actual terms; then, the refinancing gain will be measured based on these conditions. In terms of the definition of refinancing with respect to changes in debt conditions, there are two events that are considered major changes: (i) changes in debt conditions that increase the return on investment (ROI) by 5% or more, and (ii) refinancing gain of W10 billion or more. Table 5-15 shows the basic principle for refinancing in the PPP Basic Plan and the guideline.

Sharing refinancing gain. The Basic Plan states that the refinancing gain is measured as the increase in investors' expected IRR in the post-refinancing financial model against the base case financial model. The competent authority and the concessionaire share the gain 50:50. The Guideline for Refinancing provides more specific rules about sharing the gain. It states that the investors' expected IRR is measured as blended return on equity (equity and subordinated debt combined). In measuring the blended return on equity, cash flows include investment of paid-in capital and subordinated debt, interest and principal repayment on subordinated debt, and dividends. The guideline proposes to follow the concession agreement between the competent authority and concessionaire. The minimum size of a project whose refinancing gain will be shared is stated as W50 billion in the guideline. Projects of less than W50 billion are exempt from the refinancing gain-sharing principle. As in the Basic Plan, the ratio of sharing gain is 50:50, unless specified in the concession agreement, and this ratio is uniformly applicable throughout the project period. However, there can be exceptions if there is no subsidy, MRG, or termination payment for the project. BTL projects are another exception, unless competent authority decides otherwise. Table 5-16 shows the Basic Plan and guideline for sharing rules.

Table 5-14 Definition of Refinancing Gain

	Basic Plan	Guideline for Refinancing
Definition	The act of maximizing the expected profit of the investors through modifying the project consortium's equity structure, investment share, and debt financing conditions	– Definition of Refinancing – Capital structure change: Capital reduction, debt increase (senior and/or subordinated), switch of common share to preferred share, etc. – Debt condition change: Lower interest cost, repayment condition change, dividend condition change, etc. – Equity holder change: Change in holders of 5% or more of equity

Sources: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul; Public and Private Infrastructure Investment Management Center. 2009. Guidelines for Calculating Refinancing Gains. Seoul.

Table 5-15 Basic Principle for Refinancing Gain

	Basic Plan	Guideline for Refinancing
Basic Principle for Refinancing	– Notification: The concessionaire shall notify the competent authority about the refinancing plan regardless of whether the government will share in the refinancing gain. – Equity ratio: 10% of the management and operating rights (excluding government subsidy) in the operational period as reported in the audit report. A project under construction shall maintain the equity ratio stated in the concession agreement (minimum 25%).	– Definition of equity: Total equity (unless competent authority determines otherwise) – Timing of audit report: The last report before refinancing. – Best executable market price and conditions: The concessionaire shall do its best to follow fair market price and conditions in refinancing through fair and bona fide competition. – Considerable changes in debt financing conditions: Return on investment increase of 5% or more, or refinancing gain of W10 billion or more. – Exceptions for sharing gain: Rescue refinancing.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul; Public and Private Infrastructure Investment Management Center. 2009. Guidelines for Calculating Refinancing Gain. Seoul.

Table 5-16 Sharing Refinancing Gain

	Basic Plan	Guideline for Refinancing
Rules	Measure: increase in investors' expected IRR calculated in the post-refinancing financial model against the investor's expected IRR calculated in the base case financial model The competent authority/ concessionaire sharing ratio = 50:50	Investors' expected IRR: Blended return on equity (equity and subordinated debt combined) Cash flow based on return on equity Investment: Paid-in capital, subordinated debt Cash flow: Interest and principal repayment on subordinated debt, dividends Principle rule: The concession agreement between competent authority and concessionaire. Projects with total project cost of W50 billion or more as indicated in the concession agreement However, projects with total project cost of less than W50 billion can also apply when the competent authority finds refinancing reasonable and sharing of gains is necessary, and such provisions are included in the concession agreement. The ratio of sharing gain is 50:50, unless specified in concession agreement otherwise. 50:50 sharing ratio is uniformly applicable throughout the project period. Exceptions: (i) projects with no subsidy, no MRG, no termination payment; (ii) BTL projects, unless competent authority decides otherwise.

BTL = build–transfer–lease, IRR = internal rate of return, MRG = minimum revenue guarantee.

Sources: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul; Public and Private Infrastructure Investment Management Center. 2009. Guidelines for Calculating Refinancing Gain. Seoul.

Calculation Method. In the Basic Plan, there are three financial models: base case, pre-refinancing, and post-refinancing. The base case financial model is the model that reflects the terms in the concession agreement. The pre-refinancing model is the model that reflects the actual financial terms and operational performance, such as actual revenue and expenses before refinancing. Often the financial terms in concession agreements are different from actual terms because of the changing financial market conditions. The post-refinancing model reflects not only the actual financial terms but also the changes caused by refinancing, for example, changes in capital structure or debt conditions. The Guideline for Refinancing provides detailed guidance for calculating inflation rate, fees, and best executable debt conditions. Table 5-17 shows the calculation method in the Basic Plan and the guideline.

Utilization: The preferred method for utilizing the refinancing gain is to lower user fees. However, the Basic Plan also enables the competent authority to utilize the gain to reduce the MRG subsidy, to shorten the concession period, or to accept a one-time payment from the project company. Table 5-18 shows the utilization method for the refinancing gain in the Basic Plan and the guideline.

Refinancing Steps

The Basic Plan suggests several steps for refinancing. First, the concessionaire is required to notify the competent authority on refinancing and related plans in advance and report on the progress of refinancing at all times. Second, the concessionaire is required to do its best to obtain fair market price and conditions for refinancing through fair and bona fide competition. Third, the concessionaire is required to obtain a concession from the competent authority on the final contents of refinancing and submit necessary data needed to determine refinancing gains. For a national (central government-managed) project that has gone through deliberation by the PPP Review Committee (PRC), the competent authority is required to consult first with PIMAC and then with the MOSF. The Guideline provides a brief summary of steps for refinancing. Fourth, the existing concession

Table 5-17 Calculation Method of Refinancing Gain

	Basic Plan	Guideline for Refinancing
Calculation	– Base case financial model: To determine overall project implementation conditions at the time of concluding the concession agreement – Pre-refinancing financial model: The estimated amount of cash flow reflecting future expected price of goods and cash flow such as operating revenue and costs up to the application date for refinancing – Post-refinancing financial model: Reflecting the financing plan on the "pre-refinancing financial model"	– Inflation rate: Average of past 3 years and future 3 year target – Fixing the floating rate: (i) average fixed rate of infrastructure facilities, (ii) IRS, (iii) spread of 1-year, 3-year, 5-year, 10-year KTB, (4) MBS – Change in debt conditions should be reflected in calculating the refinancing gain – Approval of refinancing fees: Financial advisory fee, prepayment fee, refinancing feasibility study fee

KTB = Korea Treasury Bond, MBS = Mortgage Backed Security.

Sources: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul; Public and Private Infrastructure Investment Management Center. 2009. Guidelines for Calculating Refinancing Gain. Seoul.

Table 5-18 Utilization of Refinancing Gain

	Basic Plan	Guideline
Utilization	Lowering the user fee (as a priority), reducing the amount of the minimum revenue guarantee or the concession period, etc. Lowering the user fee (as a priority) on roads and railways Possibility of accepting cash from project company	Competent authority decides

Sources: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul; Public and Private Infrastructure Investment Management Center. 2009. Guidelines for Calculating Refinancing Gain. Seoul.

Table 5-19 Refinancing Steps

	Basic Plan	Guideline
Refinancing steps	– In the case of a national project that has passed deliberation by the committee, the competent authority is required to consult first with PIMAC and then with the MOSF – Report on progress of refinancing – Submit necessary data to determine refinancing gain	Steps for refinancing: Step 1: Submit the refinancing plan (the concessionaire) Step 2: Review the refinancing plan (the competent authority and PIMAC) Step 3: Negotiate (the competent authority and concessionaire) Step 4: Modify concession agreement (the competent authority and concessionaire) Step 5: Contracting for refinancing and notice (the concessionaire)

MOSF = Ministry of Strategy and Finance, PIMAC = Public and Private Infrastructure Investment Management Center.

Sources: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul; Public and Private Infrastructure Investment Management Center. 2009. guidelines for Calculating Refinancing Gain. Seoul.

agreement is modified according to the negotiated terms between the project company and the competent authority. Table 5-19 shows the refinancing steps in the Basic Plan and the guideline.

PIMAC plays a critical role in refinancing. The Basic Plan states that the center should provide advice and act as an intermediary in case of dispute. According to the Guideline for Refinancing, PIMAC must review and validate the financial models, refinancing gain estimation, and alternatives for utilization of refinancing gain before negotiations. Table 5-20 summarizes the role of PIMAC in refinancing.

As of the end of 2008, six BTO projects had been completely refinanced, and five more projects were in the process of refinancing.

Renegotiation

Renegotiation means an adjustment or change in the concession agreement. Terms and conditions in the concession agreement can be renegotiated when the PPP policy or project scope changes. Renegotiation is also possible when the government wants to

rebalance the usage of facilities among government facilities and PPP facilities. Table 5-21 shows the situations where renegotiation is possible, and how renegotiation proceeds.

The government and competent authorities are supposed to pursue renegotiation for the interest of the public and users. Furthermore, the request for renegotiation is not restricted to competent authorities. The concessionaire can also request changes in the concession agreement. Table 5-22 shows the regulations on renegotiation for improving the welfare of users.

Table 5-20 Role of the Public and Private Infrastructure Investment Management Center in Refinancing

	Basic Plan	Guideline for Refinancing
Role of the Public and Private Infrastructure Investment Management Center	Provide advice or act as intermediary in case of dispute, etc.	Review the refinancing plan before the negotiation: Validate financial models, validate refinancing gain estimation, and review alternatives for utilization

Sources: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul; Public and Private Infrastructure Investment Management Center. 2009. Guidelines for Calculating Refinancing Gain. Seoul.

Table 5-21 Renegotiable Situations and Procedures

Types	Content
Situation	• Negotiation due to changes in system or project scope • Rebalancing between government and public–private partnership projects
Procedure	• Change of plan or agreement can be proposed by both concessionaire and competent authority. • Addition or reduction of project scope is based on the concession agreement. • Matters on rebalancing with fiscal projects are addressed by the competent authority.

Sources: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul; Public and Private Infrastructure Investment Management Center. 2009. Guidelines for Calculating Refinancing Gain. Seoul.

Table 5-22 Regulations on Renegotiation of Concession Agreement

Type	Content
Disposition for public interest	• If the project company violates laws or if the competent authority considers it necessary, the competent authority can take necessary administrative measures to change the project company, suspend or change the construction period, renovate facility, or return to original state (enacted in 2000).
Tariff adjustments and other issues	• The competent authority can adjust the facility's usage method, tariff, and other matters of facility management and operation after discussion with the project company if there is concern over considerable harm to user welfare (enacted in 2000). • Use the Public and Private Infrastructure Investment Management Center's PPP project financial model and manual to present business models for the individual project plan (newly added in 2005).

PPP = public–private partnership.

Source: Ministry of Strategy and Finance. 2009. Basic Plan for Private Participation in Infrastructure. Seoul.

Evidence of Cost Savings and Efficiency Gain from Public–Private Partnerships

With the expansion of investment in build–transfer–operate (BTO) and build–transfer–lease (BTL) projects in the Republic of Korea, there is increasing need for performance evaluations of public–private partnership (PPP) investments that have taken place. Recently, not only international organizations, such as the World Bank, but also nations that have been actively promoting PPP projects, including the United Kingdom, Australia, and countries in South America are conducting research on estimating the effects of PPP investment projects. Yet, there has been little research done on the performance of PPP projects in the Republic of Korea. This chapter is intended to evaluate the economic efficiency of PPP projects in the Republic of Korea through empirical analysis. The chapter will identify areas that need improvement in various policies designed to stimulate PPP projects in the early stages.

The chapter mainly analyzes BTO projects that were carried out prior to December 2007. Efficiency will be examined through changes in the PPP projects as well as documents and financial data, such as concession agreements, toll collection, and rate of return.

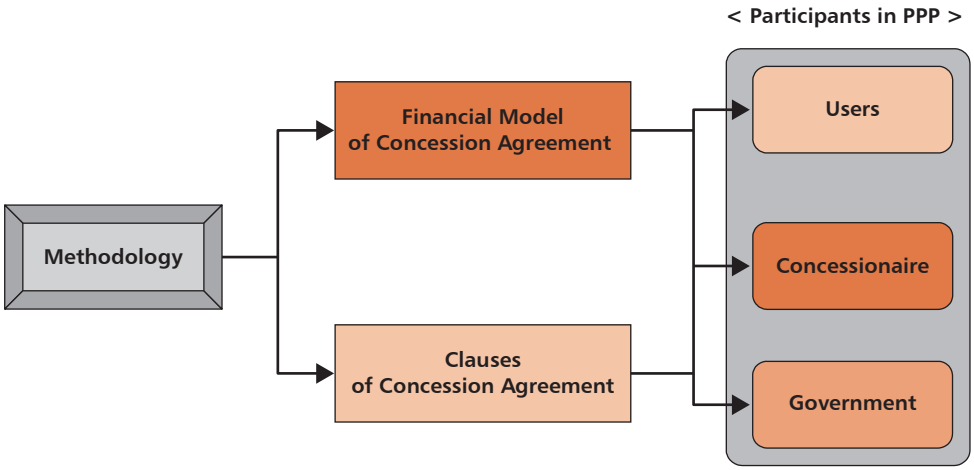
Methodology

This study analyzes the efficiency of PPP projects from the perspectives of three parties: users, concessionaires, and the government. First, the risks that each party takes are examined; the study will assess whether the risk-sharing scheme has been appropriate. Also, the concession agreements and financial models of past PPP projects will be analyzed to review whether gradual improvements have been made in the efficiency of concession agreements, toll rates, and rate of return. In other words, by understanding the changing trend in interest, risk, returns, and costs, the study aims to determine if the efficiency of PPP projects is improving. Using financial models and clauses of PPP concession agreements, we analyze the efficiency of participants in PPP projects (Figure 6-1 and Table 6-1).

Perspective of Users

From the users' perspective, the efficiency of PPP projects can be examined by analyzing the user fees (tolls on roads constructed by private investment, railway fares, etc.) through a financial model and also by reviewing the renegotiation issues of concession agreements. When people use PPP projects, they pay user fees for facilities; for example, tolls for roads and fares for railways. Comparative analyses of the user fees of government projects and PPP projects are conducted in this study. Based on accumulated experience with PPP projects, the study examines whether the gap between the user fees for government projects and PPP projects are gradually narrowing.

Figure 6-1 Methodology for Analysis of Public–Private Partnership Project Efficiency



PPP = public–private partnership.

Source: Sung Hwan Shin. 2010. Hongik University.

Table 6-1 Perspectives of Parties to a Public–Private Partnership: Users, Concessionaires, and the Government

	Financial Model	Clauses of Concession Agreement
Users	– Comparison of user fees	– Role of government to protect public interest
Concessionaire	– Competition in the bidding process – Fair return for risks of build–transfer–operate project	– Risk and return to concessionaires: Insurance, termination payment, prohibition of alternatives, support of government
Government	– Present value of government subsidy	– Risk: Quality control risk, fluctuation risk of government subsidy

Source: Sung Hwan Shin. 2010. Hongik University.

For the welfare of the users of PPP projects, the government usually permits renegotiation of concession agreements. This study examines the clauses in concession agreements that are related to renegotiation to analyze to what extent the government could protect the interests of facility users.

Perspective of Concessionaire

One of the most important factors for efficient implementation of PPP projects is sufficient competition among bidders. From the perspective of concessionaires, the study examines whether there were adequate levels of competition and also, in accordance with the intensity of competition, it aims to analyze government subsidies and the returns to concessionaires in comparison to the risks that they take. In cases of efficiently implemented PPP projects, concessionaires gain a fair level of returns that compensate for the risks. The analysis aims to examine whether the

expected concessionaires' rate of return is adequate in comparison with the risks. Since estimation of the adequate rate of return for PPP projects is required for this process, the research methodology in the Public and Private Infrastructure Investment Management Center's (PIMAC) 2006 Study on the Optimum Rate of Return in Various BTO Projects is employed for the estimation of various sectors, including roads, railways, and ports.

Lastly, the clauses in concession agreements that are related to the risks and rate of return to concessionaires are examined. In other words, clauses on imputation, insurance, termination payment, and the government's support for efficient implementation of PPP projects are analyzed.

Perspective of Government

As reflected in the value for money (VFM) test, PPP projects need to bring some kind of efficiency gains in comparison with traditional public projects. In public projects, the government funds all of the project cost and collects the user fee over a long period of time that roughly corresponds to the concession period. In PPP projects, on the other hand, the government provides a subsidy to a private company. One way to evaluate the efficiency of PPP projects is to compare the actual costs of the PPP projects and comparable public projects. This study aims to conduct a comparative analysis of the government's costs provided to public projects and PPP projects.

Also to check whether the government is effectively controlling its risk, clauses in concession agreements concerning delay, quality control, and minimum revenue guarantee (MRG) payment risk will be examined.

Financial Analysis of Concession Agreement

This section will look at risks that stakeholders take for PPP projects and examine whether such risks are shared appropriately and whether the return on risk is fair. It will also analyze the economic efficiency of private investment projects by comparing tolls and by comparing the government subsidy provided to PPP projects and public projects. Fair rate of return for PPP projects will be estimated to determine whether the financial terms in concession agreements were adequately negotiated between the government and project companies.

Perspective of Users

User fees for roads. Based on the calculation methodology of the Korea Highway Corporation, which is a public company, the tolls for PPP project roads are converted into those for government-financed roads to compare the two types of projects. The results are shown in Table 6-2 and Figure 6-2. The difference in user fees between government-financed and PPP road projects has decreased over time.

User fees for railways. The difference in user fees between government-financed projects and PPP projects for railways is examined by comparing the level of passage fares. The results are shown in Table 6-3 and Figure 6-3. As in road projects, the difference in user fees between government-financed and PPP projects has decreased over time.

Table 6-2 User Fees for Roads: Government-Financed vs. Public–Private Partnership Projects

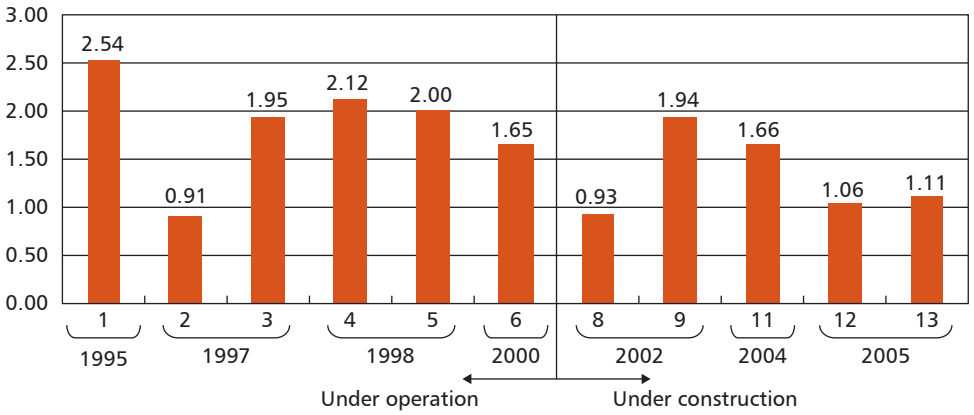
Status		Project	Distance (kilometer)	Real Rate of Return (%)	Govt. Financed Tolls[a] (A) (W)	PPP Tolls (B) (W)	Ratio (B/A)	Date of Contract Award
In operation	1	A - expressway	40.20	9.70	2,800	7,100	**2.54**	27 October 1995
	2	B - beltway	4.29	9.34	1,100	1,000	**0.91**	28 February 1997
	3	C - expressway	80.96	9.24	4,100	8,000	**1.95**	3 April 1997
	4	D - expressway	82.05	9.83	4,200	8,900	**2.12**	17 March 1998
	5	E - tunnel	2.96	8.03	1,000	2,000	**2.00**	May 1998
	6	F - expressway	36.30	9.52	2,600	4,300	**1.65**	14 December 2000
Under construction	7	G - bridge	1.84	9.20	1,000	1,000	**1.00**	17 June 2002
	8	H - expressway	12.40	8.48	1,500	1,400	**0.93**	27 June 2002
	9	I - expressway	14.27	8.28	1,600	3,100	**1.94**	22 December 2003
	10	J - bridge	1.70	8.00	900	2,500	**2.78**	19 March 2004
	11	K - expressway	61.40	8.00	3,800	6,300	**1.66**	19 March 2004
	12	L - expressway	22.90	7.01	1,800	1,900	**1.06**	10 January 2005
	13	M - expressway	38.50	7.04	2,700	3,000	**1.11**	10 January 2005

Govt. = government, PPP = public–private partnership.

[a] The level of tolls of PPP projects are converted into those of government-financed roads based on the standard toll calculation formula.

Source: Internal data from PIMAC, KDI.

Figure 6-2 Ratio of Public–Private Partnership Toll Level to Government-Financed Toll Level



Source: Internal data from PIMAC, KDI.

Table 6-3 User Fees for Railways: Government-Financed vs. Public–Private Partnership Projects

			Date of Agreement	Public Railways (A) (W)	PPP Railways (B) (W)	Ratio (B/A)
In operation	1	A - railways	1999	500	750	1.50
Under construction	2	B - LRT	7 January 2000	600	962	1.60
	3	C - LRT	31 December 2001	600	1,086	1.81
	4	D - railways	1 May 2002	600	1,000	1.67
	5	E - railways	2 January 2003	700	1,000	1.43
	6	F - LRT	1 September 2004	800	981	1.23

LRT = light railway transit, PPP = public–private partnership, W = won.

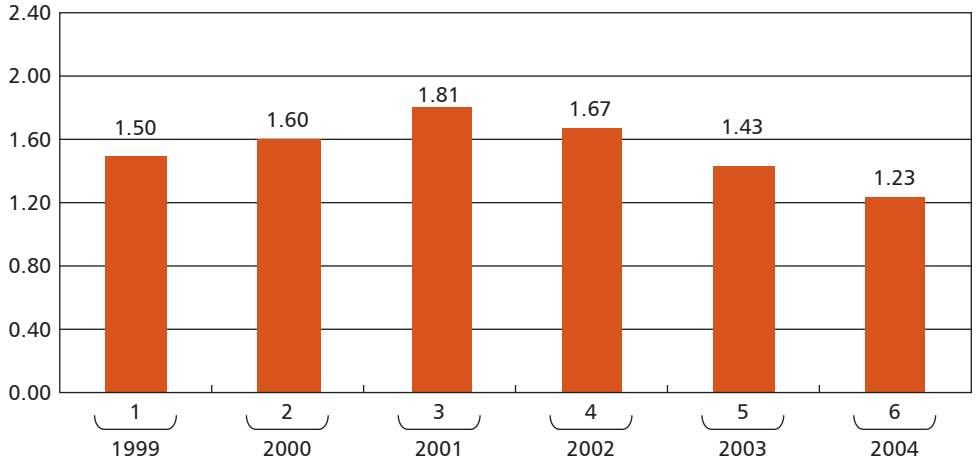
Source: Internal data from PIMAC, KDI.

Perspective of Concessionaire

Promoting competition among private participants bidding for PPP projects is one of the key elements in enhancing efficiency. Table 6-4 and Table 6-5 show the number of bidders on PPP projects from 1995 to 2007 by year and sector. Surprisingly, 70% of the projects had a single bidder. Moreover, there was no significant difference between the number of bidders for solicited and unsolicited projects. One possible reason for the insufficient competition was the high cost of submitting proposals. Private participants seemed reluctant to bid for projects unless they had a good chance to win. This lack of adequate competition implies that there is much room for improvement in the efficiency of PPP projects. Nonetheless, one promising development is that the number of bidders increased over time. Although the number of bidders is still not sufficient, the trend implies that the lack of competition is being mitigated over time.

One way to measure the efficiency of PPP projects is to examine the appropriateness of returns to private participants in comparison with the risks that they take. The

Figure 6-3 Ratio of User Fees of Public–Private Partnership Railways to Government-Financed Railways (unit: times)



Source: Internal data from PIMAC, KDI.

Table 6-4 Number of Bidders on Public–Private Partnership Projects by Year

	Number of Bidders					Percentage			
Year	1	2	3	4	Total	1	2	3	4
1995	1	–	–	–	1	100.0	–	–	–
1997	2	1	–	–	3	66.7	33.3	–	–
1998	1	1	–	–	2	50.0	–	–	–
1999	5	1	–	–	6	83.3	–	–	–
2000	7	–	–	–	7	100.0	–	–	–
2001	6	4	–	–	10	60.0	40.0	–	–
2002	4	1	–	2	7	57.1	14.3	–	–
2003	5	3	1	1	10	50.0	30.0	–	–
2004	1	–	–	–	1	100.0	–	–	–
2005	7	1	1	–	9	77.8	11.1	–	–
2006	1	–	–	1	2	50.0	0.0	–	50.0
2007	3	–	–	–	3	100.0	0.0	–	–
Under negotiation	5	1	2	–	8	62.5	12.5	25.0	–
Total	48	13	4	4	69	69.6	18.8	5.8	5.8

Source: Internal data from PIMAC, KDI.

risks of infrastructure projects depend on (i) the nature of the projects and (ii) the level of risk transfer from government to the private company. During the life of the projects, various kinds of risks arise, such as construction, operational (cost and revenue), financial, and political risks. The level of risk transfer from the government to the private company depends upon the conditions for the MRG and government redemption. Provisions for early termination also affect the level of risk transfer.

Table 6-5 Number of Bidders on Public–Private Partnership Projects by Sector

Type	Sector	Number of Bidders					Total
		1	2	3	4	Subtotal	
Solicited project	Road	9	1	–	1	11	42
	Seaport	9	2	–	2	13	
	Railway	3	4	–	–	7	
	Logistics	2	1	–	–	3	
	Airport	6	–	1	–	7	
	Environment	–	1	–	–	1	
	Subtotal	29	9	1	3	–	
Unsolicited project	Road	8	2	1	1	12	27
	Seaport	3	–	1	–	4	
	Railway	2	–	1	–	3	
	Logistics	1	1	–	–	2	
	Airport	–	–	–	–	–	
	Environment	5	1	–	–	6	
	Subtotal	19	4	3	1	–	
Total	Number of bidders	48	13	4	4	69	
	Ratio (%)	69.57	18.84	5.80	5.80	100	

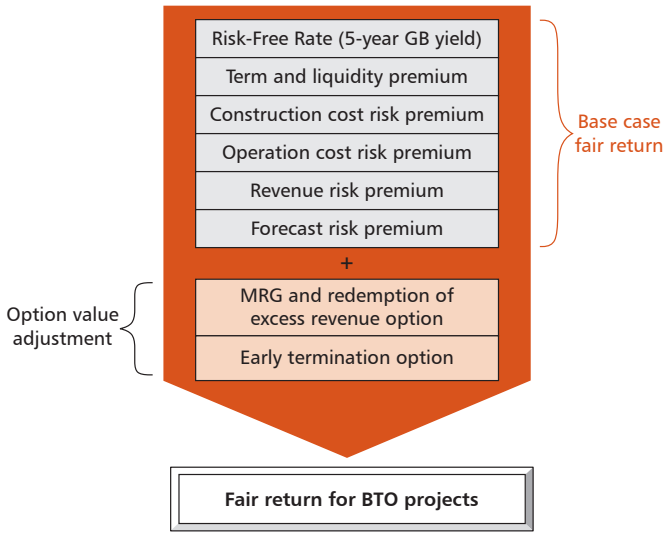
Source: Internal data from PIMAC, KDI.

In theory, only non-diversifiable systematic risks are compensated in efficient markets. Therefore, to estimate the appropriate return for PPP projects, it is necessary to measure the systematic risks of the project. An example of systematic risk is the fluctuation in construction costs or revenues due to the business cycle. Among diversifiable risks, there are risks that are theoretically diversifiable but practically difficult to diversify. Among them is the risk of demand forecasting (or demand risk). Forecasting revenue from a project several years ahead carries a large margin of error. In fact, this demand forecasting risk is the most serious risk because (i) the amount of risk is huge and (ii) it is practically difficult to diversify. Therefore, ignoring the demand forecast risk may result in unrealistically low returns for the private participants. For systematic risk, the capital asset pricing model is used to estimate fair return, and for hard-to-diversify risk the cost of risk is estimated as well.

The fair return also depends upon the contractual agreement between the private participants and the government. A high level of MRG means less risk transfer from the government to private participants. Therefore, the higher the MRG level is, the lower the fair returns should be. The possibility of early termination also implies an option for private participants and the government. The appropriate return should reflect these provisions in the concession agreement.

Estimation of the appropriate return can be broken down into two steps: (i) estimation of the base case fair return (BCFR) and (ii) adjustment for option values such as MRG or redemption right of the government. As described in Figure 6-4, the BCFR consists of (i) term premium and liquidity premium, (ii) construction cost risks, (iii) operational

Figure 6-4 Fair Return for Risks of Build–Transfer–Operate Project



BTO = build–transfer–operate, GB = government bond, MRG = minimum revenue guarantee.

Source: Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

cost risk, (iv) revenue risk premium, and (v) forecast risk premium. Option value adjustment reflects MRG and redemption and early termination conditions in the concession agreement.

Step 1: Base Case Fair Return Estimation

The BCFR can be approximated by adding premiums for liquidity risk, construction and operating cost risk, and demand forecasting risk to a risk-free rate. Thirty-year maturity government bond yield would be a good candidate for a risk-free rate because the life of projects is often 30 years. However, because the Republic of Korea does not have a government bond of such an extended maturity domestically, we use as a proxy the sum of the 5-year maturity government bond yield and a 1% term and liquidity premium. The fair return for systematic risk during the construction and operational period is estimated by the capital asset pricing model.[28]

To estimate the construction risk premium, revenue-controlled asset beta of construction companies is used. The revenue is controlled to separate the risk related to revenue fluctuations of the construction companies, as construction risks are cost overrun risks during the construction period. During the operational period, risks can be categorized into revenue risk and operating cost risk. To estimate revenue risk, the approach of Irwin is used.[29] Irwin estimated the fair return by using the capital asset pricing model approach and the data on the fluctuation of the toll revenue and the Korea Composite Stock Price Index return.

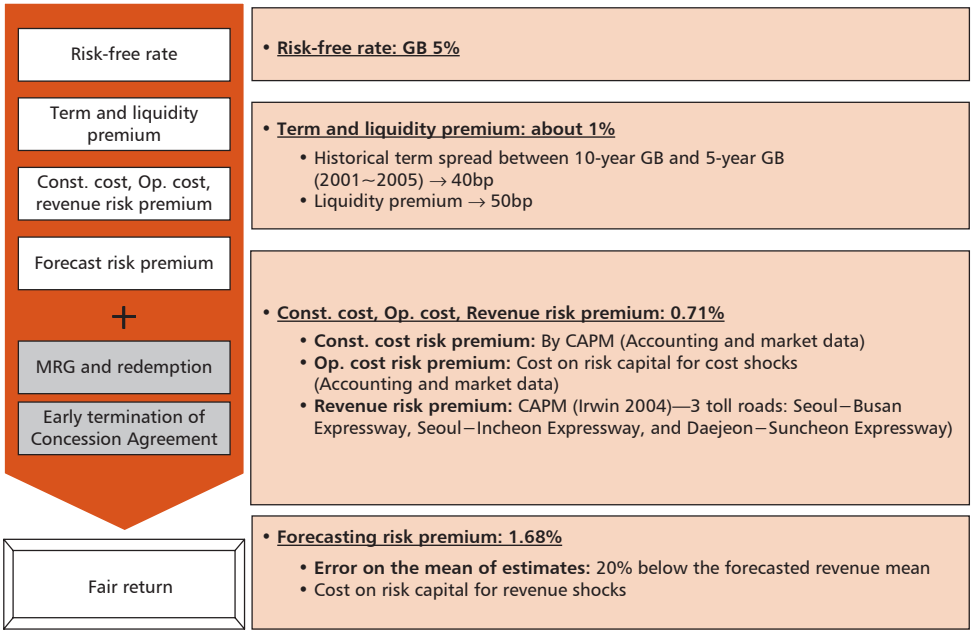
[28] Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

[29] T. Irwin. 2004. Measuring and Valuing the Risks Created by Revenue and Exchange-Rate Guarantee in Korea. In *Developing Practice for Korea's PPI Market: With a Focus on PSC.* Seoul: Korea Research Institute for Human Settlement.

Private participants take the risk of operating cost overruns during the operational period. Estimated operational cost may change during the operational period of 30 years or more. Like demand forecasting risk, operating cost overrun risk is difficult to hedge especially because the effect extends over long periods. Fair return for individual risks that are hard to hedge can be estimated through the risk capital approach. Like the revenue-controlled asset beta of construction companies, revenue-controlled asset beta of operating companies is estimated, and then the required capital for absorbing cost shocks is estimated. The shock was assumed to last 10 years and the required return on risk capital for a 95% level cost shock was regarded as a fair return for operational cost overrun risk. Construction cost risk, operational cost risk, and revenue risk premium is estimated as 0.71% in total.

Demand forecasting risk can be defined as the risk of revenue falling below forecast level. It is a different notion from revenue risk in that demand forecasting risk is the risk of the mean of revenues falling short of the forecast mean, whereas the revenue risk is the risk of volatility in revenues over time. Fair return for demand forecasting risk is estimated by the risk capital approach. Because it is difficult to estimate the 95% or 99% level of demand forecast error, the yearly revenue standard deviation of 10% employed by Irwin was used as a proxy for standard deviation of error distribution. The risk capital was estimated at 99% confidence level. Using the data from one of the projects, the premium for demand forecasting risk is estimated as 1.68%. The estimation results are summarized in Figure 6-5.

Figure 6-5 Fair Return for Risks of Build–Transfer–Operate Road Sector Project



bp = basis point, CAPM = capital asset pricing model, Const. = construction, GB = government bond, MRG = minimum revenue guarantee, Op. = operation.

Source: Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

Step 2: Option Value Adjustment

In PPP projects, the government and private participants have options such as MRG and redemption or early termination. According to finance theory, we can interpret MRG as a private participants' put option on toll revenue, and early termination as a put option on the project. Likewise, we can interpret the government's redemption right as a call option on toll revenue and early termination as a call option on the project. While the conditions of options on MRG and early termination can be different depending on the project, we estimate a fair value by adopting the standard definitions of MRG and early termination in the PPP Act.

The simplest way to estimate the values of MRG and redemption is to use the Black-Scholes option pricing model expressed in Equation 6-1.[30] As input data to the Black-Scholes model, data from one BTO road project is used. For S in Equation 6-1, initial revenue of the project is used. For X, the guaranteed revenue is used, and for σ, annual volatility of revenue is used. As a risk-free rate, 5-year government bond yield plus liquidity premium of 1%, is used. The MRG and redemption band is described in Figure 6-6.

Equation 6-1 Black-Scholes Option Pricing Model

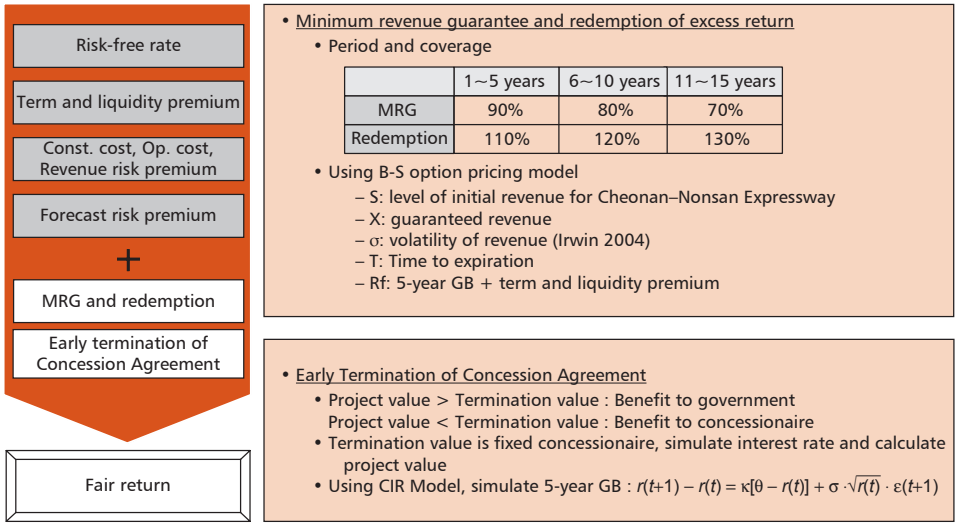
$$c = SN(d_1) - Xe^{-rT}N(d_2)$$

$$p = Xe^{-rT}N(-d_2) - SN(-d_1)$$

$$d_1 = \frac{\ln(S/X) + (r + \sigma^2/2)\cdot T}{\sigma\sqrt{T}}$$

$$d_2 = \frac{\ln(S/X) + (r - \sigma^2/2)\cdot T}{\sigma\sqrt{T}} = d_1 - \sigma\sqrt{T}$$

Figure 6-6 Option Value—Minimum Revenue Guarantee and Redemption of Excess Revenue



Const. = construction, GB = government bond, MRG = minimum revenue guarantee.

[30] Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects.* Seoul: PIMAC, KDI.

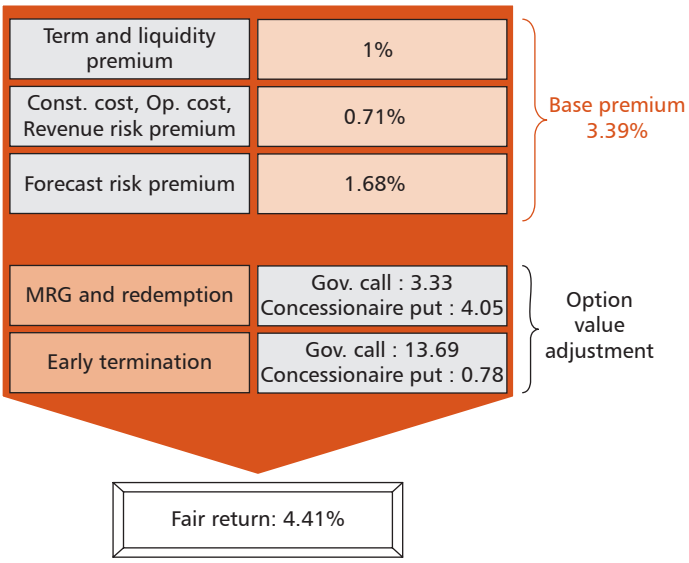
According to the PPP Basic Plan, both the government and private participants can request early termination and claim a subsequent termination fee at any point during the project if the counterpart can be imputed. Even though the situation can be more complicated with such legal issues as the imputed parties' intention, we tried to estimate the value of early termination by assuming that early termination is possible as stipulated in the plan. From the financial point of view, it is beneficial for the government to terminate early if the project value is larger than the termination payment. On the other hand, if the termination payment is larger than the project value, it is beneficial for the private participant to terminate early.

Whereas the termination payment is determined by a formula in the concession agreement, the project value varies as the interest rates and revenues fluctuate. For simplicity, revenues are assumed to be maintained at a specific level. So, we simulate the interest rates for 5-year government bonds by using the Cox–Ingersoll–Ross model and generate a project value (Equation 6-2). Results are summarized in Figure 6-7.

Equation 6-2 Cox–Ingersoll–Ross Model

$$r(t+1) - r(t) = \kappa[\theta - r(t)] + \sigma \cdot \sqrt{r(t)} \cdot \varepsilon(t+1)$$

Figure 6-7 Results of Build–Transfer–Operate Return for Road Project



Const. = construction, Gov. = government, MRG = minimum revenue guarantee, Op = operation.

Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects.* Seoul: PIMAC, KDI.

It is well known that demand forecasts are generally upward-biased for infrastructure projects in the Republic of Korea, as well as in other countries. If demand forecasts are biased, the value of options would change. The fair return value provided above is based on the assumption of unbiased demand forecasts. The fair return adjusted for the demand forecast bias is shown in Table 6-6.

Applying the same methodologies to other projects, fair returns are estimated. The contractual returns to private participants are shown in Table 6-7 in comparison with

Table 6-6 Impact of Forecast Bias (%)

Sector	Actual Mean/Forecasted Mean	Premium
Roads	100	4.41
	90	4.12
	80	3.82
	70	3.49
	60	3.11
	50	2.69

Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects.* Seoul: PIMAC, KDI.

Table 6-7 Results of Fair Return for Build–Transfer–Operate Road Projects

		Concession Agreement				Results	
Project		Real	Nominal	GB5	Premium Against 5-year KTB	Fair Premium	Excess Return
1	A – expressway	9.70	15.19	4.88	10.31	5.60	4.71
2	B – expressway	9.34	14.81	3.67	11.14	3.18	7.96
3	C – expressway	9.24	14.70	4.47	10.23	3.80	6.43
4	D – expressway	9.83	14.85	4.29	7.93	3.04	4.89
5	E – tunnel	8.03	12.35	4.77	7.58	4.74	2.84
6	F – bridge	9.20	14.66	4.19	10.47	3.32	7.15
7	G – expressway	8.48	13.90	6.33	7.57	3.46	4.11
8	H – expressway	8.857	14.30	4.41	9.89	3.50	6.39
9	I – expressway	8.28	13.69	5.13	8.56	2.69	5.87
10	J – bridge	8.20	13.61	5.16	8.45	3.57	4.88
11	K – bridge	8.00	12.32	4.88	7.44	2.43	5.01
12	L – expressway	8.00	12.32	4.88	7.44	3.82	3.62
13	M – expressway	7.01	11.29	3.89	7.40	3.63	3.77
14	N – expressway	7.04	11.70	3.89	7.81	3.61	4.20

GB5 = 5-year government bond, KTB = Korea Treasury Bond.

Source: Concession Agreement of each expressway project.

5-year government bond yield and the estimated fair return. The premiums against 5-year government bond yield range 7.4%–11.14%; against the fair return, they range 2.43%–5.60% (average 3.6%). Table 6-7 and Figure 6-8 show that the premiums over 5-year Korean Treasury bond have declined over time. This implies that the PPP environment for private participants has become more competitive over time.

The premiums for railways and port projects are also estimated and shown in Table 6-8. The premiums against 5-year government bond yield for railways are 8.99%–10.46%; against the estimated fair return, they are 3.04%–5.06%. The premiums for ports against 5-year government bond yield are 8.92%–10.38%; against the estimated fair return, they are 1.78%–8.51% (Figure 6-9).

Figure 6-8 Results of Fair Return for Build-Transfer-Operate Road Projects

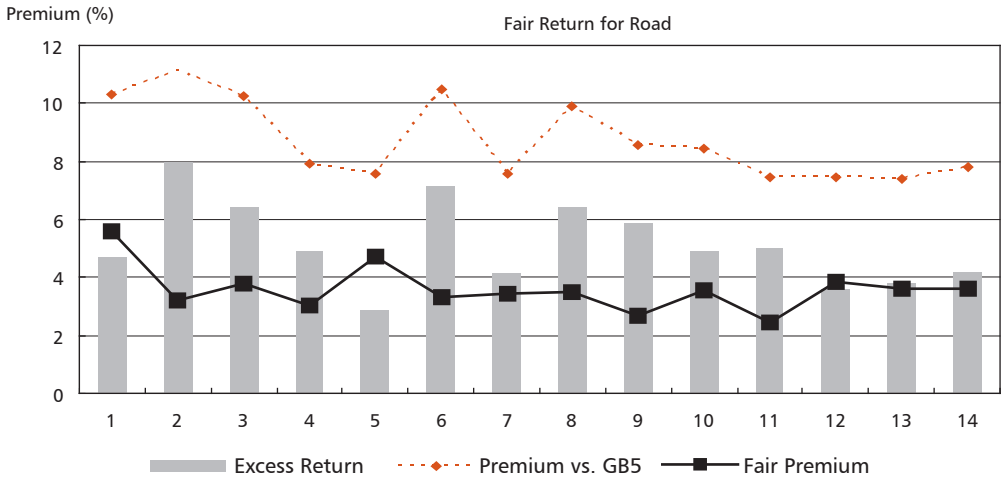


Table 6-8 Results of Fair Return for Railways and Ports

Project			Concession Agreement				Results	
			Real	Nominal	GB5	Premium Against 5-year KTB	Fair Premium	Excess Return
Railways	1	A – LRT	9.10	14.56	5.57	8.99	3.04	5.94
	2	B – LRT	8.86	14.30	4.47	9.83	5.06	4.77
	3	C – railways	8.00	13.40	4.29	9.11	3.3	5.81
	4	D – railways	8.90	14.35	3.89	10.46	3.63	6.82
Port	1	E – port	8.90	14.35	5.43	8.92	8.51	0.41
	2	F – port	8.87	14.31	4.88	9.43	2.89	6.54
	3	G – port	8.57	14.00	4.58	9.42	2.52	6.9
	4	H – port	8.45	13.87	4.58	9.29	2.74	6.55
	5	I – port	8.30	14.35	3.97	10.38	5.47	4.91
	6	J – port	8.17	13.58	4.39	9.19	1.78	7.41

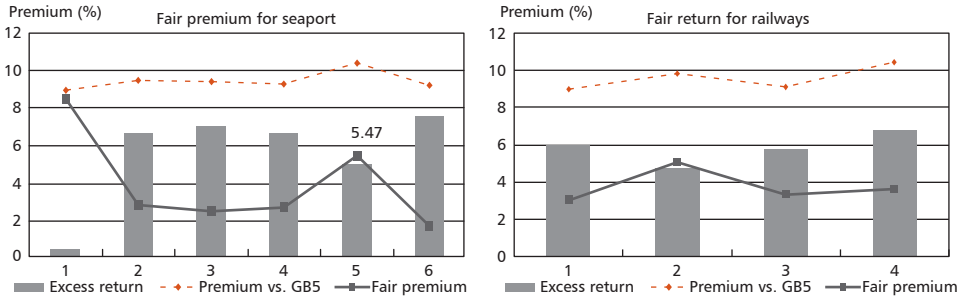
GB5 = 5-year government bond, KTB = Korea Treasury Bond.

Source: Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

Perspective of Government

All the issues in PPP projects are directly or indirectly related to the government. The most directly related issue is the government subsidy, which is injected into PPP projects during the construction period. To examine its efficiency, the government subsidy for PPP projects will be compared with the subsidy for government-financed public projects carried out by government-owned corporations such as the Korea Highway Corporation. Two road project cases will be examined.

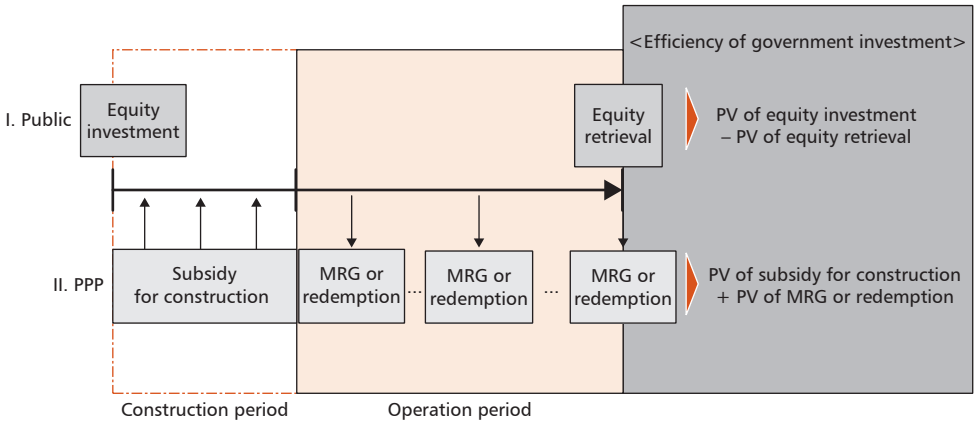
Figure 6-9 Fair Return for Railways and Seaports



GB5 = 5-year government bond.

Source: Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

Figure 6-10 Cash Flows of Government Subsidy for Government-Financed and Public–Private Partnership Projects



MRG = minimum revenue guarantee, PPP = public–private partnership, PV = present value.

Source: Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

The cash flows from government-financed public projects are (i) investment at the beginning of the project and (ii) retrieval of the principal at the end of the project. The cash flows from PPP projects are (i) construction subsidy during the construction period and (ii) MRG or redemption of excess revenue during the operational period. The concession period for PPP projects and the retrieval period for public projects are assumed to be the same, 30 years. The cash flows are described in Figure 6-10.

The government subsidy comparison results for road project A are shown in Table 6-9. There was no construction subsidy for this project. The level of actual revenue from tolls in this project must be 80% or higher than projected revenue for the government to begin redemption. When the level is at least 80%, the government can begin redemption without having to offer a subsidy, thereby reaping profits. If the level of actual revenue from tolls falls below 66.25% of forecast revenue, it would be more efficient for the government to carry out a government-financed project. If the level of actual revenue to forecast revenue is at least 66.25%, it would be more efficient to carry out a PPP project.

Table 6-9 Comparison of Government Subsidy in Project A (W billion)

		Actual Revenue/Forecast Revenue (%)						
		50	60	66.25	70	80	90	100
PV (Govt. subsidy)	Public				565			
	PPP	1,232	821	565	411	0	–67	–168
Difference		667	256	0	–154	–565	–632	–733

Govt. = government, PPP = public–private partnership, PV = Present Value.

Source: Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

Table 6-10 Comparison of Government Subsidy in Project B (W billion)

		Actual Revenue/Forecast Revenue (%)							
		50	70	75.20	82	100	102	103	110
PV (Govt. subsidy)	Public					5,937			
	PPP	13,116	7,418	5,937	3,999	2,381	2,906	–766	–416
Difference		7,179	1,480	0	–1,939	–3,556	–3,031	–6,703	–6,353

Govt. = government, PPP = public–private partnership, PV = Present Value.

Source: Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

Results from project B are shown in Table 6-10. Unlike project A, this project had a construction subsidy from the government. In this project, redemption begins when the level of actual revenue from tolls is 82% or higher of forecast revenue. Given that the construction subsidy worth W408.2 billion was injected in an early period, however, the government can begin redemption without generating a subsidy when the level is at least 103%. If the level of actual revenue from tolls falls to less than 75.20% of forecast revenue, it would be more efficient to carry out the project in the form of a government-financed project.

Analysis of Concession Agreement Clauses

Perspective of Users

The role of the government in protecting the interests of the public has been included in the PPP Basic Plan as shown in Table 6-11 and Table 6-12. The government's role in promoting the public interest was not specified in early agreements, however. Clauses outlining that role were added later, and PPP projects changed direction to take into account the public interest as well as the interests of the government and private participants.

Perspective of Concessionaire

Table 6-13 shows the clauses relating to risks and returns for concessionaires. In early concession agreements for PPP projects, the definition of risk remained vague. As projects were carried out, agreements improved over time to define risk more specifically and set out actions to address risk so that projects could be carried out

Table 6-11 Government Role in Protecting the Interests of the Public

	Guidelines for Public–Private Partnership Infrastructure Projects
Government roles in protecting public interest	– Authority of supervising department to change concessionaire or to halt or make necessary changes in projects (2000) – Authority of supervising department to adjust user fees and management and operation schemes in negotiation with the concessionaire (2000) – Principle of using the government's refinancing gains to lower user fees (2004)

Note: Years in parentheses indicate the years the guidelines were introduced.

Source: Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

Table 6-12 Cases of Interests of the Public in Concession Agreement Clauses

Evolution: Increasing government's role for public interests
• 1995 (Incheon Airport Highway, Cheonan–Nonsan Highway): None • 1998 (Deagu–Busan Highway): [Article 30] If expansion of the road is inevitable due to traffic volume, government may initiate the expansion project. • 2002 (Busan–Kimhae LRT): [Article 76] Authority of the central or local government to intervene in the projects for the interests of the public.

LRT = light rail transit.

Source: Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

Table 6-13 Clauses Relating to Risks and Returns for Concessionaire

Guidelines for Public–Private Partnership Infrastructure Projects	
Risk mitigation	– Classification of risks: Obligated by government, by concessionaire, or force majeure – Principles of risk control and sharing: (i) insurance, (ii) sharing, (iii) clarification of the obligor
Payment for early termination	– Abstract level (2000): "May request for early termination payment in case …" – Elaboration (2003): – Differentiation of payment — (i) authority default, (ii) concessionaire default, (iii) nonpolitical force majeure, (iv) political force majeure – Differentiation of payment — (i) construction, (ii) operation – Further elaboration (2004): – Introduction of the concept of "fair cost of capital"
Government support	Simplification of the negotiation process for concession agreements (2004)

Note: Years in parentheses indicate the years the guidelines were introduced.

Source: Public and Private Infrastructure Investment Management Center. 2006. *A Study on Fair Return for Separate Business Sectors of the BTO Project.* Seoul.

Table 6-14 Case of Clauses Relating to Risks and Returns for Concessionaire: Risk Mitigation

Early Stage (1995) Declaration of the principle	Elaboration Specification of the types of risks
• **[Article 6]** Risk Taking ("Concessionaire must perform with his/her own risk and cost …") • **[Article 23]** Insurance ("Concessionaire must be insured …")	• **[Article 6]** Risk Taking: ① List of special provisions for concessionaire to be non-obligated ② List of insurances for concessionaire to be required to purchase • **[Article 48]** Rules of risk sharing: ① Clarification of the types of risks that the concessionaire assumes ② Concessionaire/Government, Insurance, division of risks through negotiation

Source: Articles from XX Project.

Table 6-15 Guideline for Early Termination Payment in Build–Transfer–Operate Projects

Early Stage (1995)	Elaboration (2004)		
	Category	Construction period	Operating period
• Government must compensate the proper amount of the project by consultation. • Government covers senior debt.	Default by concessionaire	Incurred private investment amount	Depreciated value of the amount on the left
	Default by government	Incorporated private investment amount × [1 + current IRR (B)]	Weighted average of ① the sum of the depreciated value of the amount on the left and ② present value of the project for the remaining operating period
	Nonpolitical force majeure	Incurred private investment amount × [1 + Standard debt interest rate (A)]	Same as above
	Political force majeure	Incorporate private investment amount × [1 + (A + B)/2)]	Same as above

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure*. Seoul.

more efficiently. Concessionaires also made efforts to categorize types of risk based on default cases and utilize insurance programs to mitigate the risks of projects (Table 6-14).

PPP projects can be terminated early for various reasons. Concessionaires are compensated for estimated future profits at the time of termination or suspension of the project. Defaults are categorized into four types: (i) default by concessionaire, (ii) default by government, (iii) political force majeure, and (iv) non-political force majeure. Depending on the type of default, the amount of government termination payment varies. In 2004, the government revised the termination guidelines and set new provisions on termination payment (Table 6-15). With the revision, the burden

Table 6-16 Evolution of Government Risk on Quality Control and Minimum Revenue Guarantee in the Basic Plan Guideline: Risks for Government

Annual Plan for Public–Private Partnership Infrastructure Projects	
Quality control	Specification of indemnities for delay in construction (1994) Specification of the rights of the authority to control the quality of projects including construction and operation (2003)
Minimum revenue guarantee (MRG)	Guarantee period and coverage for MRG decreased over time

Note: Years in parentheses indicate the years the Basic Plan was amended.

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure*. Seoul.

Table 6-17 Case Study of Government Risk on Quality Control: New Boondang Railway

Early Stage (1999–Incheon Expressway)	2005–New Boondang Railway
• Indemnities for delay in construction	• **[Article 19] Quality Control Program Establishment:** The concessionaire shall prepare and implement a quality assurance plan with well-defined procedures. – write as specific as possible such as Korea Standards Association, ISO 9001, ISO 14001, etc.

Source: Articles from XX Project.

of payment on the government was eased across various categories. The revision also refers to data on toll revenue so as to take a more realistic approach to increase the efficiency of projects.

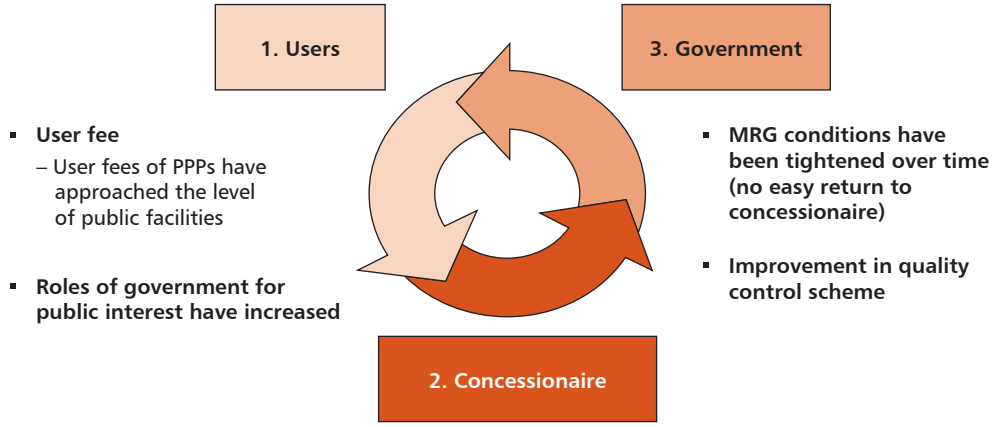
Perspective of Government

The government supervises and controls PPP projects through concession agreements. By carrying out infrastructure projects as PPPs, the government transfers some of the risks to private participants. Yet, the burden of quality control of the project is in the hands of the government, which also shares some of demand risk through MRGs. Table 6-16 shows the evolution of clauses about quality control and MRGs. In early projects, quality control covered the construction period, management responsibilities, inspection of partial completion, and completion inspections. In the recent New Boondang Railway project, quality control deals specifically with quality assurance, management plans, and ISO 9001 and 14001 standards (Table 6-17).

Wrap-Up: Cost Savings and Efficiency Gain

This chapter looked into the stakeholder risks in PPP projects, risk sharing, return on risk, and changes to risk mitigation over time by analyzing financial models and clauses of concession agreements. It also examined the efficiency of concession agreements, the level of tolls, and profitability of PPP projects over the past few years (Figure 6-11).

Figure 6-11 Conclusion of Concession Agreement



- **Room for improvement in the bidding process**
  - – Competition has not been enough
  - – No significant difference between solicited projects and unsolicited projects.
- **Fair return for risks**
  - – Real and nominal returns have decreased rapidly.
  - – Room for further reflecting the concept of risk premium (over risk-free rate)

MRG = minimum revenue guarantee, PPP = public–private partnership.

Source: Sung Hwan Shin. 2010. Hongik University.

Perspective of Users

From the perspective of users, efficiency can be divided into (i) analysis of the level of user fees (tolls and passage fares of PPP roads and railways) based on financial models and (ii) renegotiation issues involving concession agreements. Users pay fees such as tolls for roads and passage fares for railways while they are using PPP facilities usually at higher levels than those of government-financed facilities. By comparing and analyzing the level of user fees between government-financed and public–private investment projects, this chapter examined whether the difference in user fees between government and PPP projects has decreased over time, based on accumulated experience with PPP projects. The results of the comparison found that the difference in user fees between government and PPP projects has steadily decreased in proportion to accumulated experience in PPP projects.

When drafting concession agreements, the government usually keeps the possibilities of renegotiations open so as to promote the welfare of the public, who are users of the PPP social overhead capital (SOC) facilities. To examine the extent to which the government protects the interests of users, this section looked at renegotiation-related clauses of concession agreements. The results of the analysis suggest that the government's role in protecting the public interest has increased over time.

Perspective of Concessionaire

For PPP projects to be carried out efficiently, one of the most important issues is promoting competition among private participants bidding for a project. Therefore, the paper examined whether there was enough competition among private

participants and analyzed government subsidies, given the level of competition and return on risk for private participants.

In the past, there was not enough competition among private participants. Some 70% of PPP projects involved a sole bidder, with about 30% having more than one bidder. The level of competition was examined based on the two types of projects: (i) solicited and (ii) unsolicited. What is noteworthy is that there is no significant difference in the level of competition between solicited and unsolicited projects. With solicited projects, the problem of asymmetric information among private participants is less serious compared to unsolicited projects. Therefore, more competition would be expected. Real data, however, indicate that there is no significant difference in the level of competition between the two types of projects and that many solicited projects have involved a sole bidder. The results suggest that solicited projects may have been carried out less efficiently. Project data by year, however, show that the number of bidders has increased over time, indicating that projects have become more efficient.

When PPP projects are carried out efficiently, private participants reap profits within the range of compensation for the risks they take. This paper examined whether the estimated rate of return of PPP projects is appropriate given the risks of the projects. To do this, an appropriate rate of return of PPP projects was estimated. The chapter adopted the research methodology used by PIMAC in fair rate of return of BTO projects based on types of projects and estimated the rates in various sectors, including roads, railways, and seaports.[31]

Results of estimated rates of return of private investment projects showed that the real rate of return stands at 6%–9%, and nominal rate of return at 11%–14%. The premium against 5-year government bond yield was 6%–9%. Results of estimation on appropriate rates of return, which account for different types of risk and agreement terms across road, railway, and seaport projects, showed that most projects were guaranteed with high rates of return. The appropriate level of premium varies depending on individual projects, but it was 2%–4% against 5-year government bond yield on average. The rate of return for private participants that joined PPP projects was much higher than the level of the risk they took for the projects. The good news is that the premium rate of return against 5-year government bond yield has decreased in the road area, which indicates improved efficiency of PPP road projects.

This chapter also looked at clauses on default caused by private participants, insurance, and termination payment to see the risk and profit-related clauses included in concession agreements. By specifying insurance to cover construction periods, operational periods, and defaults, concession agreements mitigate the risk of projects for both private participants and the government. By setting out a specific plan to cope with risk, such as allocation principles of risk, projects have become more efficient. By revising policies, such as termination payment, the government has mitigated its burden. By specifying clauses on risks and profits for private participants in infrastructure concession agreements, projects have been improved to ease the burden on stakeholders.

[31] Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects*. Seoul: PIMAC, KDI.

Perspective of Government

Most issues with PPP projects are related to the government directly or indirectly. The most directly related issue is the government subsidy, which is injected into both government-financed and PPP projects. Two cases were studied. According to results of analysis on Project A, if the level of actual revenue from tolls falls to less than 66.25% of forecast revenue, it will be more efficient to carry out a government-financed project. If the level is at least 66.25%, it will be more efficient to carry out a PPP project. Results also showed that the level of actual revenue from tolls in this project must be 80% or higher than forecast revenue, at which point the government begins redemption. When the level is at least 80%, the government can begin redemption without having to offer a subsidy, reaping profits thereby. In Project B, if the level of actual revenue from tolls falls to less than 75.20% of forecast revenue, it will be more efficient to carry out a government-financed project. The government can begin redemption without generating a subsidy when the actual revenue level is at least 103% of forecast level.

This chapter also examined the risk to the government by looking at concession agreement clauses on (i) quality control and (ii) changes in government subsidy (that is, MRG) so as to see whether the risk to the government is effectively controlled. Quality assurance guidelines referring to global standards such as ISO were absent in early agreements, but they were increasingly included over time as PPP projects were carried out. The revision of the MRG program has also mitigated the risk of government subsidy against the risk of private sector demand.

Results of a review of concession agreements showed that the risks for stakeholders in PPP projects are now more specifically defined, allocated, and processed through revisions and supplementary actions. This suggests that stakeholders in PPP projects now consult with each other and make compromises so as to manage PPP projects more efficiently.

Conclusion

The analysis in this chapter showed that PPP projects in the Republic of Korea have become more efficient from the perspectives of users, concessionaires, and the government. The key results include (i) user fees of PPP facilities have approached those of public facilities over time, (ii) the return to private participants relative to the risks they bear has become tighter thanks to increased competition in the bidding process, and (iii) the MRG level provided by the government has decreased over time. The improved efficiency of PPP projects in the Republic of Korea has been reflected in concession agreements. Overall, concession agreements have developed in the direction of better protecting the interests of users and reducing the uncertainty for private participants as well as the government.

Evidence of Public–Private Partnership Contribution to the National Economy

Background

The Republic of Korea has secured its position as the front-runner among Asian countries in the use of the public–private partnership (PPP) system as well as implementing and managing PPP projects. However, there has been criticism of PPP projects from certain groups opposed to reinvigorating them. In the case of some pilot PPP projects, such as the Incheon International Airport Expressway and Cheonan–Nonsan Expressway that are now in operation, criticism has been raised about the soaring fiscal burdens on the government due to its minimum revenue guarantee (MRG) commitments because the early-stage traffic demand was far below the initial estimation. In the case of expressways built by the PPP method, in particular, several nongovernment organization experts have raised issues about their negative effects. The Citizens' Coalition for Economic Justice, in its 2006 report entitled Truth and Untruth about PPP Expressways, said that overestimated traffic demand and high levels of tolls will result in increased taxpayer burden while weakening national competitiveness.

In the light of such criticism, evaluating and presenting the effects of PPP projects on the national economy based on objective data is necessary to provide a proper evaluation of PPP projects.

Public–Private Partnership Contribution to Economic Growth

The Government of the Republic of Korea concentrated a considerable part of its fiscal spending on replenishing the social overhead capital (SOC) over several decades, but recently it turned toward encouraging private investment in social infrastructure, as the nation's economic growth increased the needs for spending in other sectors, including public welfare.

The government introduced PPP projects with the Act on Promotion of Private Capital Investment in Social Overhead Capital in 1994, but their performance fell short of expectations because of institutional inadequacy, lack of experience, and the 1997–1998 financial crisis. To reinvigorate private investment, the government introduced a series of supplementary policies, such as providing construction subsidies and MRGs and credit guarantees, through the revised Act on Private Participation in Infrastructure in 1998. In 2005, the government introduced the build–transfer–lease (BTL) scheme in addition to the existing build–transfer–operate (BTO) method to expand PPP projects, and included social infrastructure facilities in educational, cultural, and welfare areas as targets.

Thanks to these measures to revitalize private investment, the portion of infrastructure construction through PPP projects has been expanding since the late 1990s. Out of total construction investment, the portion of fiscal investment by government agencies fell from 46.6% in 2000 to 30.8% in 2008, while that of private investment through PPP projects rose from 1.7% to 5.1% over the same period. In terms of the value of completed projects, the growth rate of fiscal investment by government

Table 7-1 Investment Ratio in Investment Type

Year	Fiscal Investment by Government Agencies	Private Investment	PPP Investment
2000	46.6	51.4	1.7
2001	44.3	53.5	1.8
2002	36.6	59.9	2.6
2003	34.8	62.0	2.5
2004	32.8	64.0	2.8
2005	30.4	66.1	3.3
2006	29.8	67.0	3.1
2007	30.3	65.7	3.9
2008	30.8	63.9	5.1
Average	35.1	61.5	3.0

PPP = public–private partnership.

Note: PPP investment indicates private investment through PPP projects, while private investment indicates investment through private sector projects.

Source: Statistics Korea.

Table 7-2 Growth Rates of Construction Investment

Year	Total	Fiscal Investment by Government Agencies	Private Investment	PPP Investment
2000	–3.1	–5.6	–1.5	29.7
2001	10.0	4.4	14.6	16.0
2002	11.2	–8.1	24.5	59.9
2003	16.6	10.7	20.6	13.9
2004	11.1	4.9	14.8	23.6
2005	4.1	–3.7	7.5	20.6
2006	2.6	0.6	4.0	–2.7
2007	6.6	8.4	4.5	33.2
2008	4.7	6.5	1.7	38.6
Average	7.1	2.0	10.1	25.9

PPP = public–private partnership.

Notes: 1. PPP investment indicates private investment through PPP projects, while private investment indicates investment through private sector projects.
2. Based on nominal price.

Source: Statistics Korea.

agencies since 2000 stood at a mere 2.0%, while that of private investment through PPP projects soared to 25.9%.

Private investment through PPP projects is concentrated in the SOC sector, especially on road construction, which accounted for up to 50% of the total from 2000 to 2008. The portion of PPP investment in the construction sector continues to rise, accounting for nearly 40% of total private sector investment in 2008. Most of the PPP SOC investment is concentrated in the transport sector such as roads, ports, and railways.

Road construction through PPP projects contributes to tax revenues, as the government imposes a 10% value-added tax on sales from toll income, as well as a corporate tax on private concessionaires. As of 2008, tax revenue from 12 road projects amounted to about W66 billion, which breaks down into an estimated W48.1 billion in value-added tax and W18 billion in corporate tax.

Despite such expansion in private investment through PPPs, it is not easy to measure and present private investment's contribution to economic growth. According to

Table 7-3 Ratio of Public–Private Partnership Investment by Type (%)

Year	Construction	Social Overhead Capital	Road	Airport/ Seaport	Railway	Waterworks
2000	8.5	90.7	88.5	2.2	0.0	0.0
2001	2.6	97.4	27.7	23.9	38.6	3.9
2002	9.0	91.0	65.1	0.5	15.6	9.6
2003	1.6	98.4	59.8	6.2	24.2	6.3
2004	18.3	81.7	31.4	19.1	26.4	2.9
2005	11.1	88.9	46.3	7.3	23.3	7.0
2006	19.1	80.7	55.3	5.1	9.7	7.8
2007	22.3	77.7	40.6	8.5	16.2	10.2
2008	37.8	62.2	35.3	0.5	10.6	11.8
Average	14.5	85.4	50.0	8.1	18.3	6.6

Note: Based on the value of orders received.

Source: Statistics Korea.

Table 7-4 Status of Tax Revenue in Public–Private Partnership Road Projects (W billion)

Tax	2001	2002	2003	2004	2005	2006	2007	2008
Value-added tax (Sales 10%)	6.9	9.9	17.0	19.9	22.4	34.9	43.0	48.1
Corporate tax	–	–	–	2.3	2.5	17.5	18.9	18.0
Total	6.9	9.9	17.0	19.9	22.4	34.8	43.1	66.0

Source: Ministry of Strategy and Finance.

a study by Rhee and Lee,[32] the promotion of PPP projects results in a decline in fiscal investment by the government and therefore does not have a significant effect on total investment. Rhee and Lee analyzed the macroeconomic impacts of PPP investment. Using the Private Participation in Infrastructure database compiled by the World Bank, they examined the relationship between PPP projects and economic growth. They found that SOC and total investment had a positive impact on economic growth, but PPP investment did not have a significant relationship with economic growth. Using the monthly time series data of value of construction investment in the Republic of Korea, they also found that an increase in PPP investment was associated with a decrease in public investment in both the short-run and the long-run, while it was associated with an increase in private investment in the short-run only. This result supports the crowding out effect of PPPs on public investment, whereas PPP investment stimulates private investment. They concluded that the potential crowding out effect of PPPs on public investment did not necessarily mean that PPP projects played no role in the provision of SOC. If it were not for PPP projects, SOC investment could have decreased significantly in the Republic of Korea. Moreover, as PPP projects in the Republic of Korea are still in the infant stage, a fair evaluation of their impact on the Korean economy has to wait until more experience is gained.

Based on the promotion of PPP projects in the Republic of Korea, it is clear that the private sector's investment portion of SOC construction grew faster in comparison with that of fiscal investment by the government. Campos, Estache, Martin, and Trujillo analyzed positive data and presented their findings that there was a negative correlation between PPP projects and the government's fiscal investment in the case of transport facilities.[33] Even taking dynamic long-term effects into account, the promotion of PPP projects was seen to replace fiscal investment, but its effects on stimulating private investment proved to be temporary.

Without the promotion of PPP projects, SOC investment was expected to have fallen remarkably. Since the financial crisis of 1997–1998, the surge in fiscal demand, which was due to rising unemployment and swelling costs for financial restructuring, has resulted in a serious shortage of financial resources for SOC investment. It was against this backdrop that the government worked out a policy package on reinvigorating private investment through PPP projects as a means of maintaining investment in SOC construction. In other words, the promotion of PPP projects may not have increased SOC investment much but contributed to maintaining its level.

Also, the promotion of PPP projects has helped ease constraints on the government's financial resources, enabling it to secure resources for sectors other than SOC construction, which also require government spending. The promotion of PPP projects has helped the aggregate total of SOC annual investment to remain largely unchanged; there has been little problem replenishing existing public infrastructure facilities. Accordingly, the government has been able to secure resources to match the decline in fiscal investment. This means the promotion of PPP projects has helped

[32] C-Y. Rhee and L. Hangyong. 2007. Public-Private Partnerships in Infrastructure and Macroeconomy: The Experience of Korea. In J-H. Kim, ed. *Performance Evaluation and Best Practice of Public-Private Partnerships.* Seoul: Korea Development Institute.

[33] Campos, J., A. Estache, and L. Serven. 2003. Macroeconomic Effects of Private Sector Participation in Infrastructure. In W. Easterly and L. Serven, eds. *The Limits of Stabilization.* World Bank, Washington.

Table 7-5 Estimation of Growth Impact of Public–Private Partnerships Using the Korea Development Institute Macroeconomic Model (W billion)

Year	GDP (nominal)	PPP Investment	Growth Impact (%)
2001	651,420	1,150	0.035
2002	720,540	1,300	0.052
2003	767,110	1,330	0.048
2004	826,890	2,250	0.060
2005	865,240	3,450	0.094
2006	908,740	4,670	0.127
2007	975,010	6,170	0.154
2008	977,790	8,050	0.198

GDP = gross domestic product, PPP = public–private partnership.

Sources: Statistics Korea; Ministry of Strategy and Finance.

ease the government's budget constraints and enabled it to put fiscal resources into other sectors according to government priorities.

The following is a macroeconomic analysis of the ripple effects that the promotion of PPP projects could have on the economy assuming the projects supplement insufficient fiscal investment. The macroeconomic model is a quarterly model based on the assumption that the central government's spending temporarily increases by the same amount in each quarter of a specific year.

The government expenditure can be divided into ordinary expenditure and capital expenditure, each of which has somewhat different macroeconomic ripple effects. It would be appropriate to regard as capital expenditure the private capital resulting from the promotion of PPP projects centered on SOC. Thanks to the promotion of PPP projects, it has become possible to put private capital into SOC and, if this is regarded as capital expenditure, it had the effect of expanding the economy by an estimated 0.198% in 2008.

The multiplier of the government expenditure is estimated to be about 0.25.[34] The outcome was estimated on the basis of private investment executed, which turned out to have effects not only in the year of execution but also in the following two years, albeit on a negligible level.

As of 2008, an increase of W1 trillion in capital expenditure was estimated to have the effect of expanding gross domestic product (GDP) by 0.02% in the year of execution and 0.01% in the following year. In the fourth and fifth year of execution, it is estimated to have the effect of shrinking GDP by 0.003% and 0.005%, respectively. Of course, the analysis of effects using macroeconomic models can lead to different outcomes depending on the method of estimation.

[34] An analysis of the effects of the supplementary budget for 2008 was done by using the macroeconomic model, in August 2008, at Korea Development Institute.

Public–Private Partnership Contribution to Social Welfare

To estimate the PPP contribution to social welfare, this study analyzed 14 privately built roads in operation as of the end of 2008. PPP investment in the road sector from 2000 to 2008 was estimated to exceed W10 trillion. It is clear that private investment through PPPs has helped the timely completion and operation of the road projects in comparison with road construction built by the government alone. Considering that the Ministry of Land, Transportation and Maritime Affairs allocated an annual average of W7.85 trillion to road-related projects from 2000 to 2008, the PPP projects are thought to have advanced the completion of privately built roads by more than a year.

For the convenience of analysis, the study estimated the benefit from the roads as the welfare effect, which might have been lost had the completion and operation of the 14 PPP roads now in operation been delayed by years. Starting from the base year of 2006, the study analyzed the benefits and costs under the respective scenarios of the roads opening in 2006, 2008, and so forth. The study used as basic data in the National Origin/Destination Database and Network (2006) established and distributed by the Korea Transport Database in 2008. This study selected 14 PPP roads in operation as of the end of 2006 as the projects for analysis.

By regarding delays in the opening 14 PPP roads as their non-implementation alternative, the study estimated the benefits in 30 years following the presumed opening year of 2006. By setting 2008 and 2010 as the delayed opening years, it also analyzed changes in the welfare benefits when their openings are delayed every 2 years. Table 7-6 shows the contents of 14 PPP road projects.

As a result of the analysis, presuming that the 14 PPP roads had succeeded in early materialization of benefits by opening 2 years in advance of publicly built roads, the PPP projects were estimated to produce benefits worth about W1.45 trillion. Assuming they were opened in 2008, the early realization of benefits from the promotion of privately built roads was estimated to be worth W1.85 trillion. Assuming they were opened in 2006, or 4 years ahead of schedule, the benefits were estimated to be worth about W3.3 trillion. Assuming they were opened in 2006, or 3 years ahead of schedule, the benefits were estimated to be worth about W2.47 trillion.

Public–Private Partnership Contribution to Better Value for Money: Several Experiments

In conducting a value for money (VFM) test, the government pushes for PPP projects only when it judges that the fiscal burdens from the projects are smaller than burdens from government-funded projects; the basic criteria for such judgment is VFM. Accordingly, the promotion of PPP projects produces the effect of easing fiscal burdens in addition to replacing government-funded projects. This study conducted experiments to measure the results of the quantitative VFM figures for the targeted PPP projects and presented their presumed effects on reducing fiscal burdens.

Table 7-6 Overview of 14 Public–Private Partnership Road Projects

Project Name	Competent Authority	Total Investment Cost (W billion)	Operation Period (years)	Minimum Revenue Guarantee (years/%)	Construction Start	Construction Completion
Gwangju Second Beltway Phase 1	Gwangju	294.8	28	28 (85%)	1997.06.24	2000.11.29
Daegu–Busan Expressway	MLTM	2,475.7	30	20 (77%)	2001.02.12	2006.02.11
Mt. Woomyeon Tunnel	Seoul	179.1	30	30 (85%)	1999.08.24	2003.12.31
Incheon International Airport Expressway	MLTM	1,744.0	30	20 (80%)	1995.11.29	2000.11.21
Cheonan–Nonsan Expressway	MLTM	1,595.3	30	20 (82%)	1997.12.26	2002.12.23
Daejeon–Gapcheon Urban Expressway	Deajeon	181.8	27.4	Under negotiation	2001.12.20	2004.07.31
Gwangju Second Beltway Phase 3-1	Gwangju	186.6	30	30 (90%)	2002.04.16	2004.10.15
Mt. Manwol Tunnel	Incheon	144.1	30	30 (90%)	2000.12.18	2005.07.29
Mt. Moonhak Tunnel	Incheon	70.3	20	20 (90%)	1996.11.12	2002.03.31
Mt. Cheolma Tunnel	Incheon	94.6	30	30 (90%)	2001.01.18	2004.07.09
Baekyang Tunnel	Busan	89.3	25	25 (90%)	1993.06.00	1998.01.08
Beoman Road	Daegu	235.7	24	20 (79.8%)	1997.10.22	2002.09.01
Sujeong Tunnel	Busan	128.0	25	25 (90%)	1997.11.00	2001.12.31
Ehwaryeong Tunnel	MLTM	84.6	Busan Regional Construction Management Administration takes over the operation and management right in 2007			1998.10.00

MLTM = Ministry of Land, Transport, and Maritime Affairs.

Source: Internal data from PIMAC, KDI.

Table 7-7 Results of Cost–Benefit Analysis of Public–Private Partnership Roads for 30 Years (W billion)

	Constant Value		Current Value		
	Total Investment Cost	Total Benefit	Total Investment Cost	Total Benefit	Net Present Value
Start service in 2006	7,503.9	57,704.2	10,901.6	28,191.4	17,289.8
Start service in 2008	7,503.9	59,051.4	9,794.6	25,629.2	15,834.6
Start service in 2010	7,503.9	59,794.6	8,800.0	22,789.0	13,989.1

Source: Internal data from PIMAC, KDI.

Table 7-8 Benefits of 14 Public–Private Partnership Roads from Service Delay (W billion)

	Benefits from 2-Year Service Delay	Benefits from 4-Year Service Delay
Start service in 2006	–1,455.1	–3,300.7
Start service in 2008	–1,845.6	

Source: Internal data from PIMAC, KDI.

Table 7-9 Welfare Effect: Early Realization of Benefits from 14 Public–Private Partnership Road Projects (W billion)

	1-Year Service Delay	2-Year Service Delay	3-Year Service Delay
Start service in 2006	623.3	1,455.1	2,471.9

Source: Internal data from PIMAC, KDI.

Experiment 1: Value for Money Enhancement Presumably Estimated in 66 Build–Transfer–Operate Projects

There have been about 100 unsolicited BTO projects since the formal VFM test scheme was introduced in 2005. PIMAC judges whether to push for PPP projects based on VFM figures produced by VFM tests of the private proposals and VFM figures for the private finance initiative (PFI) alternative presented by its research team.[35] By conducting VFM tests on 66 projects out of the 100 projects proposed from 2005 to 2009, the VFM was calculated at W891 billion, while the VFM for the PFI alternative was calculated at W1,548 billion.[36] Such a number can be interpreted to mean that private proposals presented ways of saving W891 billion in the government budget, and the VFM tests presumably presented alternative means of saving an additional W671 billion.

[35] PFI alternative means private-finance-initiative alternative which is almost the same thing as PPP alternative.

[36] Most of the 44 projects not included in the calculation are those of rejected projects in the VFM tests.

Table 7-10 Experiment 1: Presumed Value for Money Increase/Decrease in 66 Build–Transfer–Operate Projects
(W billion)

Year	VFM Test Result on Private Finance Initiative[a]	VFM Test Result on Private Finance Initiative Alternative[b]	Increase/Decrease of VFM
Subtotal of 2005	–30.622	58.810	89.432(Δ)
Subtotal of 2006	506.279	789.900	287.821(Δ)
Subtotal of 2007	58.400	212.700	164.500(Δ)
Subtotal of 2008	357.279	486.566	129.287(Δ)
Total	891.336	1,547.976	671.040

VFM = value for money.

[a] VFM test result on private finance initiative submitted by private sector.
[b] VFM test result on PFI alternative calculated by adjusting costs of Public and Private Infrastructure Investment Management Center research team.

Source: VFM test reports prepared by the Public and Private Infrastructure Investment Management Center.

Experiment 2: Value for Money Enhancement Realized in 11 Build–Transfer–Operate Concession Agreements

Among the projects implemented after conducting VFM tests, the calculation of the ex-post VFM for those projects for which concession agreements have been signed shows that the projects have had the effect of reducing fiscal burdens.

As the end of 2008, a total of 12 BTO projects had concluded concession agreements after conducting VFM tests, but the ex-post VFM was calculated on only 11 of them, as there were no financial models for one project at the time of the signing of the agreement.

The difference between the ex-ante VFM and ex-post VFM figures shows an additional VFM increase of 16.32%. The total of the preliminary ex-ante VFM for the 11 projects amounted to W38.8 billion, and the signing of concession agreements produced an additional VFM worth W142.5 billion, pushing up the estimated total of the VFM to W181.3 billion.

Experiment 3: Value for Money Enhancement Realized in 30 Build–Transfer–Lease Concession Agreements

The 30 BTL projects subject for evaluation underwent a VFM test before being implemented and analyzed for the VFM. The PFI compared with the public sector comparator (PSC) for conducting a VFM test in the BTL projects were presumed ex-ante; however, their final ex-post effect on reducing the government's fiscal burdens could be measured by comparing the PSC with the government's payment fixed in the concession agreement.[37]

[37] Public sector comparator (PSC) means the comparable procurement by the public sector or the government.

Table 7-11 Experiment 2: Realized Value for Money Increase in 11 Build–Transfer–Operate Concession Agreements (%)

Project Name	VFM (ex-ante)	VFM (ex-post)	Difference
Mungyeong Daily Waste Incinerating Facility	13.00	14.84	1.84
Pocheon Resource Recovery Facilities	5.52	26.15	20.63
Ulsan Wastewater Treatment Facilities	3.40	10.44	7.04
Ulsan Resource Treatment Facilities	9.87	17.96	8.09
Ulsan Gulhwa Gangdong Wastewater Treatment Facilities	–1.64	1.09	2.73
Pohang Jangryang Wastewater Treatment Facilities	–3.58	19.84	23.41
Changwon–Busan Road	48.30	45.73	–2.57
Inje Auto Theme Park	41.62	50.51	8.89
Gimpo Sewage Pipes	3.26	30.79	27.53
Seosuwon–Uiwang Road	57.48	96.39	38.91
Yangju (Doha–Deokgye) Road	13.02	17.28	4.26
Total	4.44	20.76	16.32

VFM = value for money.

Source: VFM test reports prepared by the Public and Private Infrastructure Investment Management Center.

Table 7-12 Experiment 3: Realized Value for Money Increases in 30 Build–Transfer–Lease Concession Agreements (W billion)

Project	PSC	PFI-1 (ex-ante)	PFI-2 (ex-post)	VFM (ex-ante)[a]		VFM (ex-post)[b]		Decrease/ Increase of VFM (ex-post)-(ex-ante)	
				Amount	Ratio (%)	Amount	Ratio (%)	Amount	Ratio (%)
Military residential facilities	18.2	17.2	15.9	1.0	5.5	2.3	12.0	1.3	7.0
School facilities	498.9	483.7	496.7	15.1	3.0	2.2	0.0	(13.0)	–3.0
Sewage pipes	1,020.9	947.4	855.3	73.5	7.2	165.6	16.0	92.1	9.0
Total	1,538.0	1,448.3	1,367.9	89.6	5.8	170.1	11.1	80.4	5.2

PFI = private finance initiative, PSC = public sector comparator, VFM = value for money.

[a] Assumed PFI is calculated from VFM test.

[b] Actual PFI is estimated based on government payment determined in concession agreement.

Source: VFM test reports prepared by the Public and Private Infrastructure Investment Management Center.

Table 7-13 Comparison of Total Project Cost and Operating Cost in 12 School Projects (W billion)

Unitary Project	PSC		VFM Test of PFI		Concession Agreement		Cost Comparison of VFM Test of PFI and Concession Agreement	
	Total Project Cost	Operation Cost	Total Project Cost	Operation Cost	Private Investment Cost	Operation Cost	Increase/ Decrease of Project Cost (%)	Increase/ Decrease of Operation Cost (%)
○○ Elementary school and others (0 schools)	40.3	13.5	33.7	13.2	32.1	15.0	–4.8	13.3
○○ and Others (0 schools)	65.8	12.5	54.0	15.5	48.5	18.8	–10.2	20.8
○○ Elementary school and others (0 schools)	55.4	9.6	45.5	11.7	44.1	15.2	–3.1	29.8
○○ Middle school and others (0 schools)	36.2	6.7	29.7	9.4	28.0	11.9	–5.8	26.5
○○ High school and others (0 schools)	56.1	30.5	45.8	29.5	45.9	29.0	0.3	–1.7
○○ High school and others (0 schools)	42.5	10.6	34.8	10.8	34.1	17.9	–2.0	65.8
○○ Elementary school and others (0 schools)	51.6	15.8	42.3	16.1	40.1	25.4	–5.3	57.4
○○ High school and others (0 schools)	32.6	10.8	27.1	10.6	23.7	13.9	–12.4	31.8
○○ Elementary school and others (0 schools)	29.3	10.2	24.4	10.0	21.3	13.0	–12.7	30.0
○○ Elementary school and others (0 schools)	61.5	12.3	50.3	12.4	41.2	24.2	–18.1	95.6
○○ Elementary school and others (0 schools)	33.6	6.3	27.5	7.1	27.6	15.8	0.2	123.7
○○ Elementary school and others (0 schools)	55.0	8.2	44.6	82.0	38.1	15.6	–14.6	–81.0
Total	559.9	147.0	459.7	228.3	424.7	215.7	–7.6	–5.5

PFI = private finance initiative, PSC = public sector comparator, VFM = value for money.

Source: VFM test reports prepared by the Public and Private Infrastructure Investment Management Center.

Table 7-14 Major Reasons of Underestimation of Operational Cost in 12 School Projects

Cost	Description
Operation and management cost	– Labor cost — Number of employees in special purpose company, sanitation workers – Increase of outsourcing cost for facility and sanitary management – Increase of inspection cost for facility safety management – Insurance rate increase for school facilities and disaster victims – Increase of office operational cost and workers' welfare cost
Maintenance and repair cost	– Changes of maintenance and repair cost in items and life cycles – Changes of materials – Changes of item adjustment in maintenance and repair cost

Source: Public and Private Infrastructure Investment Management Center.

To calculate the final ex-post effect of the VFM on reducing the government's fiscal burden, the study conducted an ex-post VFM test based on the PSC and the payment the government was supposed to make to each project according to its concession agreement. The ex-post VFM test was conducted on 30 BTL projects. The examination of changes in the VFM through the ex-post VFM test shows that the ex-post VFM was larger than the preliminary VFM in the case of military residence facilities managed by the Ministry of National Defense and sewage pipes facilities managed by the Ministry of Environment. In the case of school facilities managed by the Ministry of Education, Science, and Technology, however, the ex-post VFM was revealed to be less in comparison with the initial ex-ante VFM.

As the ex-post VFM has been analyzed to be nonexistent in the case of school facilities, an additional analysis has been conducted by dividing ex-post VFM into two parts as presumed project cost and operational cost. As shown in Table 7-11, although total project cost was estimated to be smaller in the concession agreement than in the PSC, the operational cost increased more in the concession agreement than in the PSC, causing the overall VFM to decrease.

The results reveals that total project costs in both the PSC and the PFI in the stage of the VFM test for educational facilities have been estimated at appropriate levels, considering that recent fiscal projects have been calculated by using the data from newly built schools. Also, it is interpreted that PFI project cost has been agreed at lower levels than those presumed in the stage of the VFM test, thanks to competition and other elements in the bidding process. The operational cost, however, was judged to be underestimated, as it was calculated on the basis of the existing government-built schools' spending on operational cost in the stage of the VFM test, without clearly setting the outcome and quality of the operation.

As a result of comparing and analyzing the outcome quality (as stipulated in the document on the level of required outcome) during the operational period of agreed projects, major reasons for the underestimation of operational costs in the stage of the VFM test are shown in Table 7-15.

Table 7-15 Ex-Post Value for Money Based on Re-Estimation of Operational Cost in 12 School Projects (W billion/%)

Project of School Facilities	Ex-ante[a]				Ex-post[b]				Increase/ Decrease	
	PSC	PFI	VFM value	VFM ratio (%)	PSC	PFI	VFM value	VFM ratio (%)	VFM value	VFM ratio (%)
○○ Elementary school and others (0 schools) newly built	47.1	45.4	1.7	3.6	44.8	35.5	9.3	20.8	7.6	447.9
○○ School and others (0 schools) newly or extension built	53.4	51.4	2.0	3.8	58.0	52.9	5.2	8.9	3.1	152.7
○○ Elementary school and others (0 schools) renovation or extension built	46.1	43.6	2.5	5.4	48.8	47.1	1.7	3.5	(0.8)	–31.1
○○ Middle school and others (0 schools) newly or extension built	29.3	28.7	0.6	2.0	32.9	31.2	1.7	5.3	1.1	191.5
○○ School and others (0 schools) newly built	58.0	54.8	3.2	5.5	58.7	55.2	3.5	6.0	0.3	10.6
○○ High school and others (0 schools) newly built or renovation	35.8	35.1	0.7	1.9	40.2	40.6	–0.4	–1.0	(1.1)	–161.1
○○ Elementary school and others (0 schools) newly built	45.0	44.2	0.8	1.7	50.7	49.2	1.5	3.0	0.7	98.1
○○ High school and others (0 schools) newly built	28.8	28.5	0.3	1.0	31.6	28.9	2.7	8.6	2.4	800.1
○○ Elementary school and others (0 schools) newly built	26.1	25.9	0.2	0.8	28.8	26.0	2.8	9.8	2.6	1,304.2
○○ Elementary school and others (0 schools) newly or extension built	50.8	49.8	1.0	2.0	56.8	50.8	6.1	10.7	5.1	508.3
○○ Elementary school and others (0 schools) newly or extension built	27.5	27.4	0.1	0.4	32.6	33.0	–0.4	–1.4	(0.6)	–485.3
○○ Elementary school and others (0 schools) newly built	51.0	49.0	2.0	3.9	51.0	46.4	4.6	8.9	2.6	127.8
Total	498.9	483.7	15.1	3.0	535.0	496.7	38.3	7.2	23.2	153.3

PFI = private finance initiative, PSC = public sector comparator, VFM = value for money.

[a] Assumed PFI is calculated from VFM test.

[b] Actual PFI is estimated based on government payment determined in concession agreement.

Source: VFM test reports prepared by the Public and Private Infrastructure Investment Management Center.

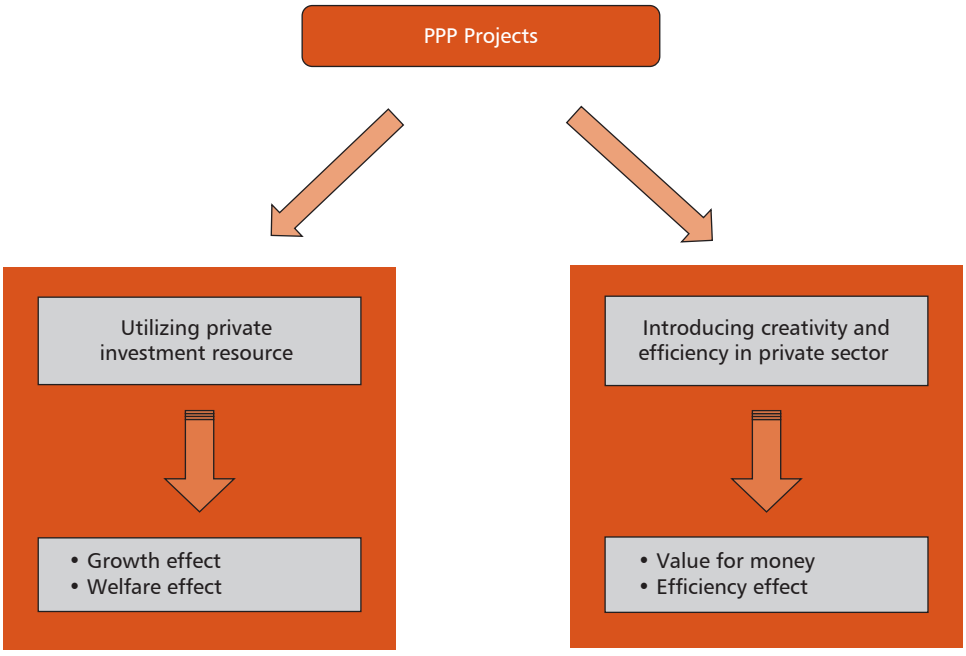
As the operational cost calculated in the PSC in the stage of the VFM test has been judged to be somewhat underestimated, the study re-estimated the operational cost in the PSC that fits the outcome quality (as stipulated in the document on the level of required outcome) during the operational period of agreed projects and re-analyzed the VFM to determine the exact effect on reducing the government's fiscal burden. The exact effect by re-estimating the operational cost as seen in Table 7-15, has been estimated to be bigger. In the case of 12 school projects, there were difficulties estimating the VFM in the PSC due to difficulties in securing basic materials and analysis data for conducting the VFM test in the early stage of implementing BTL projects, but the adjustment now has shown the ex-post VFM increased.

Implications

The promotion of PPP projects is expected to have ripple effects on the national economy through the following three channels:

- contribution to economic growth resulting from the input of private capital,
- contribution to social welfare resulting from on-time delivery and early realization of social benefits, and
- contribution to reducing the government's fiscal burdens through better VFM.

Figure 7-1 Public–Private Partnership Contribution to the National Economy



PPP = public–private partnership.

Source: Jungwook Kim. 2010. Korea Development Institute.

As of the end of 2008, private financial resources of more than W20 trillion had been invested through PPP projects, resulting in an estimated GDP growth of 0.198% based on the 2008 standard price.[38]

The 14 PPP roads, for instance, were opened about 2 years ahead of schedule, resulting in the early realization of social benefits worth about W1.45 trillion. If the 14 PPP road projects had been implemented with government funding alone, their completion and operation are presumed to have been delayed for a considerable period of time, meaning the PPP projects have made the early realization of benefits possible. If the realization of benefits is presumed to be 3 years earlier, the benefit is estimated to be about W2.47 trillion. If the realization of benefits is presumed to be 4 years earlier, the benefit is estimated to be about W3.3 trillion.

Based on the results of several experimental VFM tests, the VFM for the PFI from 66 BTO projects was estimated to reach about W891 billion, and the VFM for the PFI alternative was estimated to be about W1,548 billion, while the VFM for 30 BTL projects was analyzed to be W89.6 billion. In the case of BTO projects, it was estimated to have secured an additional ex-post VFM worth W142.5 billion from 11 projects, for which concession agreements were signed after conducting a VFM test. In the case of BTL projects, the ex-post VFM was analyzed to have increased by W84 billion, pushing up the total VFM to W170.1 billion.

The analysis of BTL projects have found that they reduce both cost and time overruns, which work to enhance the efficiency of investment into social infrastructure facilities. In the case of BTL projects, total project cost has been reduced by 10.18% and the construction period shortened by 8.04%, resulting in an efficiency advantage over government-financed projects.

Although the effects in each item can be separated in theory, they may overlap to a considerable extent in reality. Therefore, it is necessary to take considerable care in presenting the effects of PPP projects.

[38] Source: Ministry of Strategy and Finance.

Budgeting and Safeguard Ceiling for Public–Private Partnership Fiscal Commitment

Background

The government intends to promote public–private partnership (PPP) projects because first, it lacks resources to carry out the projects itself and, second, it can take advantage of the creativity and efficiency of the private sector. When a PPP project is approved, to what extent can and should it replace government sector investment? Although PPP projects can accelerate establishment of social infrastructure by addressing the problem of limited financial resources of the government, it is neither possible nor desirable to increase the amount of PPP investment without limits. Building infrastructure facilities through PPP investment means that the government borrows from future funding needs; in effect, it is a loan that needs to be paid off in the mid- and long-term. The government is unable to increase the amount of future liability indefinitely.

The lack of government financial resources can reduce investment in needed infrastructure, leading to a drop in public sector investment against gross domestic product (GDP) and hurting the GDP growth rate. This may in turn impair the government's ability to pay off debt. Given the effects of investment in infrastructure on the national economy, many countries have promoted PPP projects instead of cutting investment amounts when they face a lack of financial resources.

By using private sector capital, the government can also benefit from the efficiency of the private sector and invest in new areas by saving money. These effects may help increase GDP growth, which will in turn make the private sector more willing to participate in PPP projects.[39] The rub is that most countries with limited experience in PPP projects will find it hard to have a clear-cut answer about how much government debt will increase through PPPs.

[39] Rhee and Lee showed that PPP investments in the Republic of Korea have negative correlations with public investments, with the former likely to have crowded out the latter, at least partially. This suggests that the promotion of PPP projects over the past decade has not led to an expansion of infrastructure. Although PPP investments have failed to result in additional construction by reducing public investments, they are presumed to have made up for insufficient public investment, which fell over the past decade for various reasons. Without PPP investment, public investment alone could not have supplied sufficient infrastructure, so it would be safe to say that the expansion of PPPs has contributed to the replenishment of economic and social infrastructure in the Republic of Korea. See C-Y. Rhee and H. Lee. 2007. Public-Private Partnerships in Infrastructure and Macroeconomy: The Experience of Korea. In J-H. Kim, ed. *Performance Evaluation and Best Practice of Public-Private Partnerships*. Seoul: Korea Development Institute. Chapter 4.

From a fiscal point of view, a key to PPP projects is whether a government can maintain fiscal adequacy and stability using PPPs. The growing interest in PPPs has increased the need for clear rules for budgeting and accounting treatment. How to report to and get approval from the National Assembly is an important issue. A safeguard ceiling may emphasize that even if a government moves ahead with a large-scale PPP project that involves large-scale borrowing from future generations, the total project amount must be limited to maintain fiscal soundness and sustainability.

Budgeting and Reporting of Public–Private Partnerships

The growing interest around the world in PPPs has increased the need for clear rules for budgeting and accounting treatment. No comprehensive accounting standards exist for the treatment of PPPs in national budgets and international comparable statistics, such as national accounts. Adding to the complexity, there are various kinds of PPP arrangements and no precise definition or delimitations.

Steps have been taken in the accounting profession to offer guidance on this issue but, so far, the guidance is not enough. The absence of standards makes it possible to avoid normal spending controls and use PPPs to circumvent spending ceilings and fiscal rules. The absence of standards may also create incentives to move investment that would otherwise be considered public investment off the government's balance sheets. These circumventions include moving expenditure to future budgets, increasing government liabilities, and entering into guarantees to receive private financing, but with taxpayers bearing the risk of future high costs. There is also a need for governments to incorporate national procedures in the budgeting systems to deal with arrangements such as PPP contracts. National budgets differ from country to country and will continue to do so in the future. Nevertheless, governments should continuously update their national budgeting procedures and systems to ensure a focus on affordability, value for money (VFM), and long-term fiscal sustainability. They should streamline the accounting and budget rules that affect the choice of the mode of service delivery and make decisions on procurement options based on the VFM principle.[40]

Transparency is a key element in budgeting and good governance, and it applies in particular to complex transactions such as PPPs. An accurate accounting treatment requires clear procedures and practices on how to deal with PPPs, while simultaneously allowing for differences between countries.

There exists a lot of controversy over the budgeting and reporting rules for PPPs in the Republic of Korea. One argument is that the present value of government payments should be counted as liabilities, and the government should get approval of PPP contracts from the National Assembly in advance. A counter argument is that the government obligation arising from the PPP contract, which is a service contract, does not constitute a liability and does not need approval from the National Assembly.

At the same time, there is agreement that the Ministry of Strategy and Finance (MOSF) should set the investment ceiling for build–transfer–lease (BTL) projects each fiscal

[40] Organisation for Economic Co-operation and Development. 2008. *Public-Private Partnerships: In Pursuit of Risk Sharing and Value for Money*. Paris: OECD. pp. 91–92.

year and report it to the National Assembly in advance with the annual budget. In the case of build–transfer–operate (BTO) projects, however, the fiscal costs and risks associated with the projects would then be assessed and disclosed. This disclosure rule is consistent with the recommendation from the International Monetary Fund (IMF) that, if a government continues to carry the majority of the risk in a project, the government is considered the economic owner of the asset, even in cases where the private partner is the legal owner of the asset.[41]

According to an amendment to the PPP Act in December 2008, it is required that, beginning with the 2010 budget year, all BTL projects should be reviewed and pre-approved by the National Assembly. The details of the BTL projects are required to be reported in advance to the National Assembly with the government budget documents. Future payment obligations for BTL projects, along with the significant terms of the projects affecting the amount, timing, and certainty of future government payments (valued to the extent feasible) should be reported. The result of the VFM test on each project is required to be submitted as well.

In the case of BTO projects, there will be no change. The fiscal costs and risks associated with BTOs will be assessed and disclosed as usual, and BTOs are waived from pre-approval by the National Assembly.

Developing Safeguard Ceiling for Annual Public–Private Partnership Payment[42]

Case Studies of Safeguard Guidelines

United Kingdom. The Government of the United Kingdom (UK) manages the PPP projects seemingly based on the rationale of "the golden rule" and "the sustainable investment rule," which are the general fiscal management rules of the government.[43]

There are no data containing specific guidelines or upper limits, which cover the total amount of annual government payment related to private finance initiative (PFI) projects in the UK. A series of government documents and data indicate, however, that annual government payments for PFI have been maintained at about 2% of the total annual government budget. The annual 2% rate is repeatedly seen in many government documents.[44]

The UK government also controls the total amount of PFI projects based on a standard, such as the capital budget. PFI accounts for 10%–15% of total public investment. More specifically, PFI takes about 11% of the total public investment. The UK

[41] International Monetary Fund. 2004. *Public-Private Partnerships.* Washington, DC: IMF Fiscal Affairs Department.

[42] Section 8.3 is based on Chapter 6 of J-H Kim, ed. 2007. *Performance Evaluation and Best Practice of Public-Private Partnerships.* Seoul: Korea Development Institute.

[43] References to the "golden rule" and "sustainable investment rule" can be found in the National Archives of the UK government (webarchive.nationalarchives.gov.uk/20100407010852; www.hm-treasury.gov.uk/ukecon_fisc_index.htm).

[44] HM Treasury. 2006. *PFI: Strengthening Long-Term Partnerships*. London: The Stationery Office; HM Treasury. 2003. *PFI: Meeting the Investment Challenge*. London: The Stationery Office; and HM Treasury. 2004. *Standardization of PFI Contracts*, Version 3. London: The Stationery Office.

government says that these rules help prevent PFI-related government payments from impairing fiscal soundness.[45]

The PFI accounting criteria set by the HM Treasury recommend that the government categorize PFI contracts into service and lease contracts (and those that cannot be categorized) and apply different rules to each category. When the payment stream for lease and service can be distinguished, the established lease accounting rule is applied—PFI contracts constitute government debt (or asset) in case of financial lease, and corporate debt (or asset) in case of operating lease. For the service components, they are generally not classified as government debt. When the payment stream of lease and service cannot be distinguished, it is recommended that the amount is summed up as debt (or asset) of a party, which takes on higher risk or has more benefits for the business or the government. In reality, most PFI projects adopt the unitary payment system, and government payment is mostly linked to performances and availability of service. Therefore, it is hard to distinguish lease and service fees. Only about 57% of PFI projects signed through the end of 2003 were accepted as government debt, while the rest (43%) remained off balance sheet and were not included in formal government debt.[46]

International Monetary Fund. The IMF has not officially set specific instructions or guidelines on rules concerning public debt management. This is because industrialized countries do not reach a state of default even if public debt accounts for more than 70% of GDP, while developing or underdeveloped countries can default even when public debt remains relatively low. It is difficult to generalize and offer recommendations on the level of public debt across countries, since the impact of public debt and a default crisis differ even among countries with similar circumstances.

Some IMF studies examine a sustainable public debt ratio as a benchmark for countries.[47] According to these studies, industrialized countries can maintain a public debt ratio up to 75% of GDP, and developing countries up to 25% of GDP. The studies also emphasize that the sustainable public debt ratio can change depending on key factors that a country faces. They cite government fiscal revenue structure as one of primary key factors. The studies also point out that the level of openness in trading and markets affects the sustainable public debt ratio of a country. Among other key factors are political stability and government structure.[48]

Recently, the IMF has proposed that governments view PPP projects as a key component of fiscal programs.[49] From this perspective, the IMF recommends the imposition of a cap on the overall size of the program. The fund states that PPPs offer an alternative to public investment, but they are not a panacea and raise important concerns for fiscal accounts. Therefore, the IMF recommends giving high priority to the institutional framework for PPPs—including disclosure requirements and, when appropriate, ceilings on government payments—so as to limit contingent liabilities and other fiscal risks.

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[45] HM Treasury. 2006. *PFI: Strengthening Long-Term Partnerships.* London: The Stationery Office.
[46] HM Treasury. 2003. *PFI: Meeting the Investment Challenge*. London: The Stationery Office.
[47] International Monetary Fund. 2004. *Debt Sustainability in Low-Income Countries.* Washington, DC: IMF.
[48] For example, the Republic of Korea is ahead of Latin American countries in terms of fiscal soundness, openness of trade regime, and political stability. Therefore, it can have a higher public debt ratio than the 25% ratio set for Latin American countries.
[49] International Monetary Fund. 2005. *Public Investment and Fiscal Policy.* Washington, DC: IMF.

Since there are no standardized principles for accounting procedures or announcements related to private sector projects, the IMF suggests an alternative approach—adopting a method in which the government either adopts lease accounting standards or takes into account the level of risk and which party will assume the risk in the case of a service or PFI-type project (such as Eurostat standards).

The IMF proposes key content to be included in a comprehensive disclosure requirement for PPPs (Box 8-1) and suggests that governments submit these proposals to their legislatures.

Box 8-1 International Monetary Fund's Comprehensive Disclosure Requirements for Public–Private Partnerships

According to the International Monetary Fund's requirements, information on public–private partnerships (PPPs) should be disclosed in budget documents and year-end financial reports. In countries with significant PPP programs, disclosure could be in the form of a statement on PPPs. In addition to an outline of the objectives of the current and planned PPP program, and the capital value of PPP projects that are at an advanced stage of bidding, for each PPP project or group of similar projects, information should be provided on:

- Future payment obligations for the following periods: 1–5 years, 5–10 years, 10–20 years, over 20 years.
- Significant terms of the project(s) that may affect the amount, timing, and certainty of future cash flows, valued to the extent feasible (e.g., contingent liabilities, the period of a concession, the basis upon which renegotiation is determined).
- The nature and extent of rights to use specified assets (e.g., quantity, time period, or amount as appropriate), obligations to provide or rights to expect provision of services, arrangements to receive specified assets at the end of the concession period, and renewal and termination options.
- Whether the PPP assets (or any part thereof) are recognized as assets on the government's balance sheet, and how the project affects the reported fiscal balance and public debt.
- Whether the PPP assets (or any part thereof) are recognized as assets either on the balance sheet of any special purpose vehicle, or in the private partner's financial statements.[a]
- Any preferential financing for PPPs provided through government on-lending or via public financial institutions.
- Future expected or contingent government revenue, such as lease receipts, revenue or profit-sharing arrangements, or concession fees.
- Any project financing or off-balance sheet elements such as contingent liabilities provided by entities owned or controlled by the government.
- Signed PPP contracts should be made publicly available. Within-year fiscal reports should indicate major new contracts that have a short-term fiscal impact.

[a] The suggested disclosure of the private partner's accounting treatment has been made by David Heald. 2003. Value for Money Tests and Accounting Treatment in PFI Schemes. *Accounting, Auditing, and Accountability Journal.* 16 (3). pp. 342–371. While there is no question of enforcing symmetrical accounting treatment by the government and private partner, any lack of symmetry may point to areas worthy of scrutiny, especially if no part of the PPP asset is on either balance sheet.

Source: Value for Money Tests and Accounting Treatment in PFI Schemes. *Accounting, Auditing, and Accountability Journal*. 16 (3). pp. 342–371.

European Union (EU). The EU has set guidelines on specific levels of the ratio of budget deficit and public debt so as to achieve the goal of fiscal stability in the long term; this was in response to member states' debt becoming a major issue for political unity. These guidelines are represented in the Mastricht Treaty and the Stability and Growth Pact, which recommend that member states maintain a public debt ratio of less than 60% of GDP and budget deficit ratio of less than 3% of GDP.[50]

Related to private participation projects, EU countries have increasingly turned to PPPs as a way to avoid the limits on public debt and budget deficits set under the Stability and Growth Pact. Facing growing criticism of this loophole, governments of member states decided to set rules on accounting procedures for PPP projects. Under the rules, when a private sector participant takes on most of the risk of a PPP project, the government expenditure only includes lease fees. This may impair the fiscal balance of a government, but the project is not recorded as public debt. On the contrary, when the government takes on most of the risk of a PPP project, facility lease fees and service costs are recorded as public debt (or asset), therefore counting the PPP-related costs under the EU fiscal rules.

The instructions on accounting procedures related to PPP projects announced by Eurostat, the EU statistical agency, at the end of 2004 showed that accounting rules related to PPPs were eased, allowing many PPP projects to avoid being included in the list of public debt control (Box 8-2).

Box 8-2 Eurostat Decision on Public–Private Partnerships

Due to the growing interest in public–private partnerships (PPPs) and lack of clarity in how to account for them in ESA95, the Statistical Office of the European Communities (Eurostat) published a clarification of the accounting rules for PPPs. The decision applies to long-term contracts in areas where governments usually have a strong presence. Important features are initial capital expenditure of the private partner and output specifications.

According to Eurostat, the main issue in classifying a PPP investment on the balance sheet of the public or the private sector depends on who bears the most risk. The recommendation in Eurostat's decision is that assets involved in a PPP should be classified as nongovernment if both of the following conditions are met: (i) the private partner bears the construction risk, and (ii) the private partner bears either the availability risk or the demand risk.

The bearer of risk is not always easy to define, and contract design varies. In cases where it is not possible to determine whether a PPP is on or off the government books, other contract features can be considered, such as whether the asset is supposed to be transferred from the private partner to the government at the end of the contract period and at what price. This event is also an important part of the risk sharing.

The Eurostat decision states that it does not consider the motives, rationale, and efficiency of the partnerships, but only provides clear guidance on their treatment in national accounts and the impact the accounting has on government statistics. This might be true in principle, but the accounting rules should be strict enough to prevent PPP contracts from being approved where the government is assuming too much risk.

Source: Eurostat. 2004. New Decision of Eurostat on Deficit and Debt: Treatment of Public-Private Partnerships. News release. 11 February.

[50] The public debt ratio set under the EU Stability and Growth Pact is similar to the OECD standard, but the standards of the two are not the same. The Stability and Growth Pact does not include trade credit and advances, shares, and insurance technical reserve. The value of government bonds is also evaluated as nominal value.

Brazil. Following the financial crisis in 1998, Brazil imposed high tax rates, aiming at creating a budget surplus and promoting fiscal soundness. As a result of such efforts, the fiscal surplus amounted to 4.5% of GDP in 2005 compared to a fiscal deficit of over 1% of GDP in 1997.

The Government of Brazil cut spending on investment in infrastructure so as to promote fiscal soundness. Investment in infrastructure fell from around 5.2% of GDP in the 1980s to 2.3% in the 2000s; this cut in infrastructure spending became an obstacle to boosting economic growth.

To address this problem, the government increased direct government investment based on cost-effectiveness analyses it conducted in cooperation with international organizations such as the IMF and overhauled the law to approve concession-type PPP projects so as to lure private capital.

The government set a safeguard ceiling, the upper limit of the local governments' financial commitment to PPP projects, of up to 1% of the government revenue. It also adopted a series of strict fiscal rules such as the central government's authority to withdraw support for a PPP project if the local government fails to comply with the standard on public financing.

New Zealand. New Zealand has adopted the net worth rule program for PPP projects. Under this program, the government calculates the net present value of all the expenditure and revenue for the concession periods and allocates the value to each debt and asset category. This program takes into account not only public debt but also national assets for fiscal management. But to maintain the net worth rule, the government has to secure a large amount of information and establish a calculation process involving all the government expenditure and revenue. It also needs to have skilled officials with expert knowledge to carry out the task. Adoption of such a program by other countries is seen as challenging given the snowballing costs.

Setting a Safeguard Ceiling on Annual Government Public–Private Partnership Payments

As discussed earlier, few countries, except Brazil, have set a safeguard ceiling for government payments toward PPP projects either under the law or as a part of regulations. The UK has stressed that annual payments for PFI projects account for 2% of the government budget and that PFI investment is maintained at 11% (or 10%–15%) of total public investment. But it has not set a specific ceiling or guideline yet.

As noted previously, the total value of PPP projects in the Republic of Korea has reached almost W80 trillion, and adoption of so many PPP projects further puts pressure on fiscal stability and flexibility. It is recommended that the government set a safeguard limit for effectively managing fiscal commitment to PPPs.

Based on the practice of the UK, it can be assumed that if the Republic of Korea maintained either a government payment ceiling for PPPs of 2% of the national budget or PPP investment at 10%–15% of total public investment and managed the commitment in the mid- and long-term, this would ease the fiscal pressure when it comes to public financing of PPP projects.

Assuming that a 2% ceiling on annual government payments for PPPs be imposed, criteria would need to be developed regarding what constitutes the government budget, which becomes the denominator of the ceiling rate. This paper examines which form of the budget should be used in the calculation.

The UK sets the ceiling on public PPP financing by using the budget of central government agencies and local governments participating in the projects. The Korean guideline can be based on the sum of net budget of the central government (general and special accounting) and local governments (general and special accounting). Only eight central government ministries are presently participating in PPP projects, but the number is expected to increase as projects become operational and the range and number of PPP projects expand. Then, setting the ceiling by using the budgets of agencies participating in projects may cause a problem.

Therefore, the guideline can be based on the estimated budget of all central government agencies and local governments. Given that a substantial portion of the budget in special accounting is transferred from general accounting and that more than 30% of the budget used by local governments is initially provided by the central government, the parameter used for the ceiling can be based on the net budget, which excludes the transferred portion from general to special accounting and the grants or subsidies from the central to local governments. When based on the net budget, the estimated budget of the central government stood at W177 trillion and of the local governments at W70 trillion in 2007 for a combined W247 trillion. Based on this figure, the 2% ceiling would be set at about W4.95 trillion in 2007.

Simulation: Is 2% Ceiling Currently Binding?

Simulation 1: Whether Public Financing for Signed Build–Transfer–Operate Projects Exceeds the 2% Ceiling

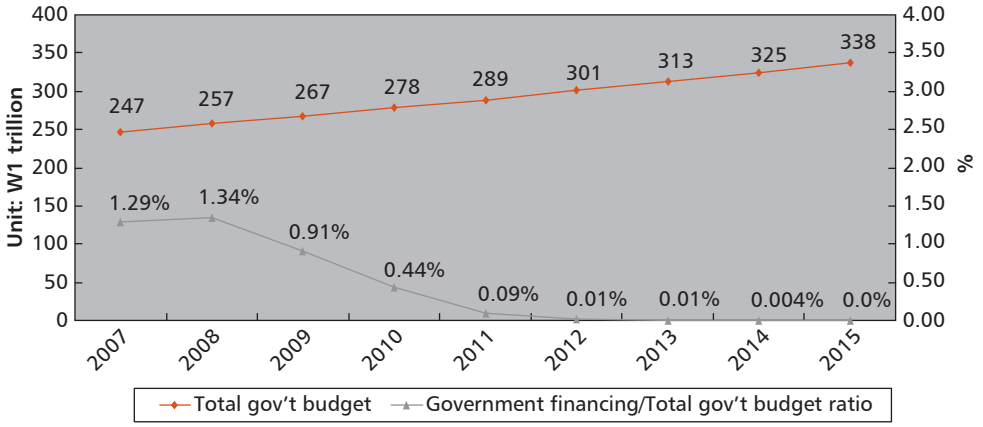
This paper conducted a simulation to check if there is a possibility that public financing for signed BTO projects exceeds the 2% ceiling, as discussed above.

Based on the current status of PPP projects described in Chapter 3, Figure 8-1 illustrates the ratio of public PPP project financing to the estimated total government budget for 116 BTO projects, which were signed as of December 2007. In this figure, the ratio stands at 1.29% in 2007, peaks at 1.34% in 2008, declines to 0.91% in 2009 and 0.44% in 2010, and drops to 0.004% in 2014. If the government carries out the 116 signed BTO projects on schedule, the ratio of public PPP project financing to the annual government budget during the entire period remains far less than the safeguard ceiling of 2%.

Simulation 2: Whether Public Financing of Planned Build–Transfer–Operate Projects Exceeds the 2% Ceiling

This paper conducted a simulation to check whether the ratio of public PPP project financing to the overall government budget for planned BTO projects exceeds the 2% ceiling. Figure 8-2 illustrates the ratio of public PPP project financing to the estimated government budget on a yearly basis related to planned BTO projects in 2008–2015. In this figure, the public PPP financing and/or estimated government budget ratio stands below 0.88% in 2009. Therefore, if the government carries out the planned BTO projects as scheduled, the ratio remains far less than the 2% ceiling during the entire period.

Figure 8-1 Forecast of Government Public–Private Partnership Financing/Total Government Budget Ratio of 116 Signed Build–Transfer–Operate Projects (W trillion)

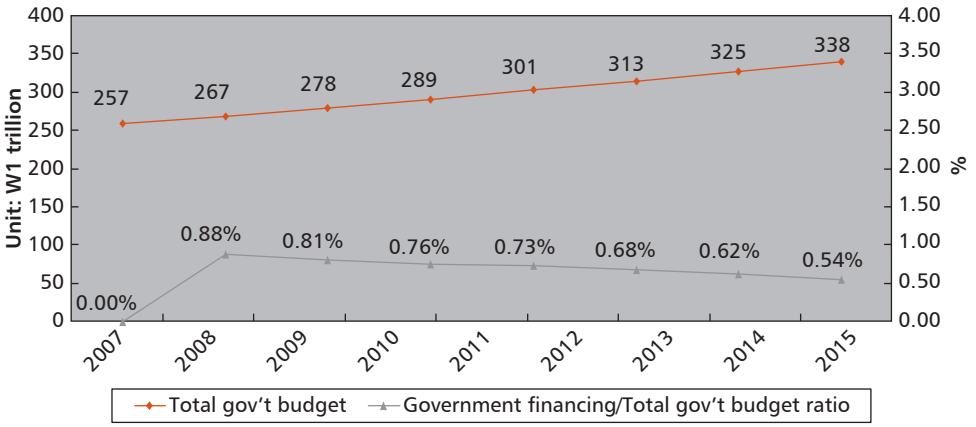


Gov't = government, PPP = public–private partnership.

Assumptions: 1. Estimation of amount of public public–private partnership financing: Current value based on agreements.
2. Estimated total government budget = W247 trillion in 2007, adjusted for 4% inflation.

Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects*. Seoul. PIMAC, KDI.

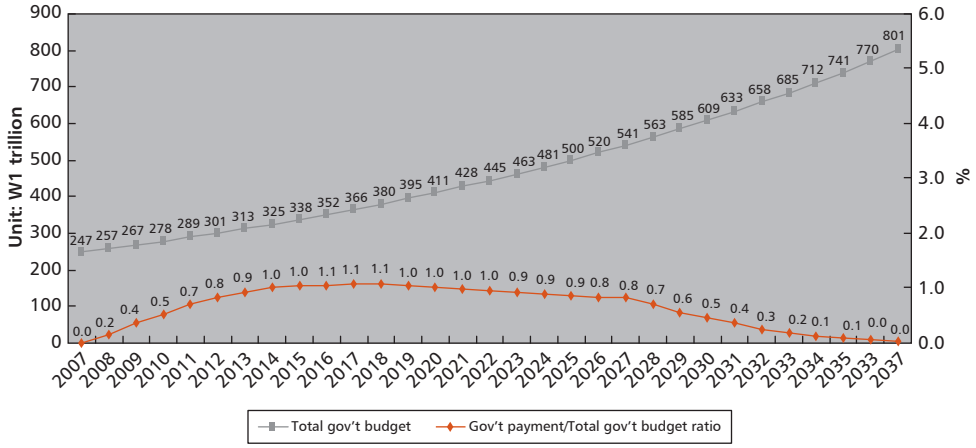
Figure 8-2 Forecast of Government Public–Private Partnership Financing/Total Government Budget Ratio of Planned Build–Transfer–Operate Projects (W trillion)



Gov't = government, PPP = public–private partnership.

Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects*. Seoul. PIMAC, KDI.

Figure 8-3 Forecast of Government Build–Transfer–Lease Project Payments/Total Government Budget Ratio: Scenario 1 (W trillion)



Assumptions: 1. Government payment = facility lease fees (rate of return 6%, 20 years) + operation cost (25% of estimated construction cost and adjusted for 4% inflation rate).
2. Estimated total budget = W247 trillion in 2007, adjusted for 4% inflation rate.
3. Period of design and construction: 3–5 years.

Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects*. Seoul. PIMAC, KDI.

Simulation 3: Whether Public Financing of Build–Transfer–Lease Projects Exceeds the 2% Ceiling

This paper conducted a simulation to determine whether the ratio of public financing of BTL projects to the overall government budget exceeds the 2% ceiling.

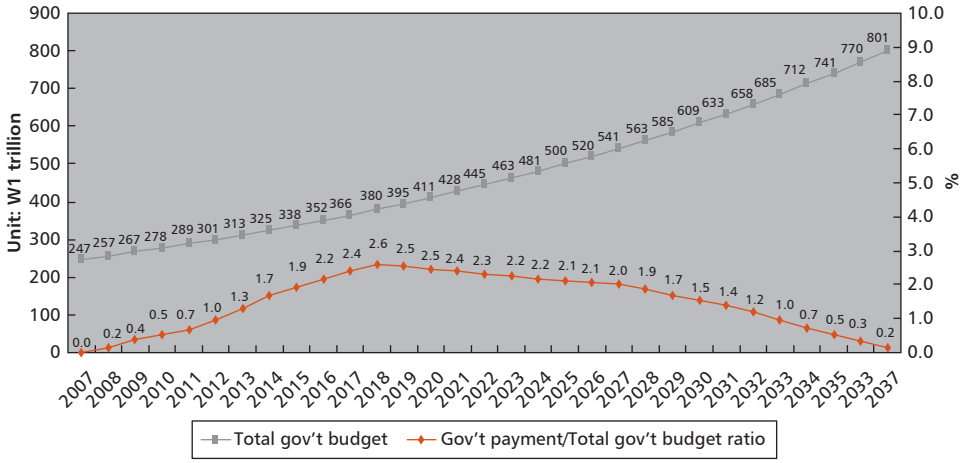
Scenario 1 assumes that the total amount of public investment in BTL projects over 10 years is W37.6 trillion. This includes W3.8 trillion in 2005, W7.3 trillion in 2006, W5.5 trillion in 2007, W5 trillion in 2008 and, according to the Medium-Term PPP Plan of 2006, W5.5 trillion in 2009, W2.5 trillion in 2010, W1.7 trillion in 2011, W1.7 trillion in 2012, W1.7 trillion in 2013, W1.5 trillion in 2014, and W1.4 trillion in 2015.

Scenario 2 assumes that the BTL project investment will sharply increase in the future. For this scenario, the public investment amount for the first 4 years is the same as the first scenario, but an additional W10 trillion is predicted to be spent each year from 2009 to 2015.

Figure 8-3 suggests that the ratio of public financing of BTL projects to the overall government budget starts at 0.2% in 2008 and increases to 1.0% in 2014, after which the ratio remains fairly constant.

In Scenario 2, the ratio of public financing of BTL projects to the estimated government budget is displayed in Figure 8-4. If the ratio of public financing of BTL projects is the same as the figure in Scenario 1, the ratio of public financing of BTL projects to the estimated government budget starts at 0.2% in 2008 and jumps to 2.6% in 2018.

Figure 8-4 Forecast of Government Build–Transfer–Lease Project Payments/Total Government Budget Ratio: Scenario 2 (W trillion)



Gov't = government.

Assumption: 1. Government payment = facility lease fees (rate of return 6%, 20 years) + operation cost (25% of estimated construction cost, adjusted for 4% inflation).
2. Estimated total budget = W247 trillion in 2007, adjusted for 4% inflation rate.
3. Period of design and construction: 3–5 years.

Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects*. Seoul. PIMAC, KDI.

The results of Scenario 2 suggest that if public financing of BTL projects continue to increase by more than W10 trillion per year for a decade, the amount of public financing may exceed the 2% ceiling beginning in 2016.

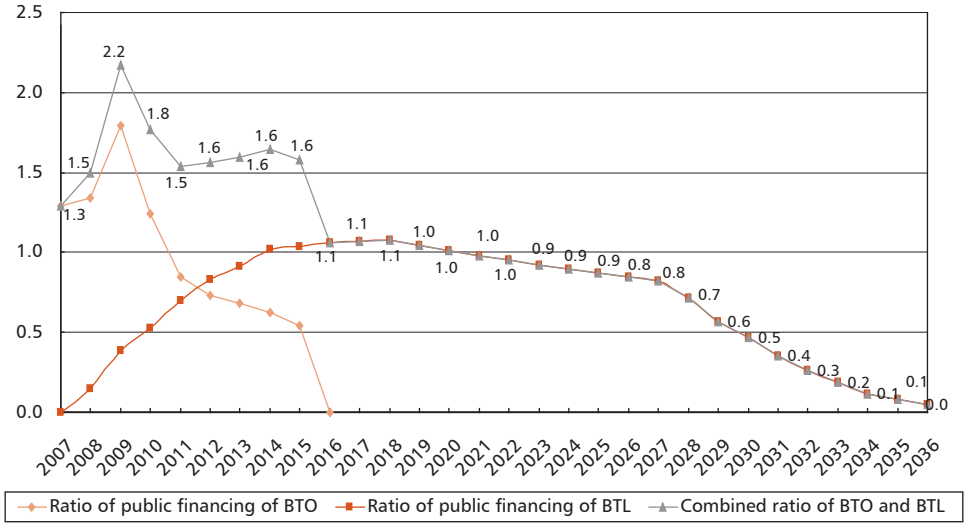
Simulation 4: Whether Total Amount of Public Financing of Signed and Planned Build–Transfer–Operate plus Build–Transfer–Lease Projects Exceeds the 2% Ceiling

This paper conducted a simulation to decide whether the total amount of public financing of signed and planned BTO plus BTL projects would exceed the 2% ceiling, when the annual amount of public financing of signed and planned BTO and BTL projects is combined based on the results of Simulations 1, 2, and 3.

Figure 8-5 suggests that, assuming that signed BTO projects are carried out on schedule and that BTL projects cost a total of W37.6 trillion for 10 years as in Scenario 1, the ratio of public PPP project financing to the estimated annual government budget stays below the 2% ceiling, with the exception of 2009, where it reaches 2.2%. Therefore, the government can manage the projects while ensuring fiscal stability.

Figure 8-6 suggests, however, that if public financing of BTL projects continues to increase by more than W10 trillion annually for a decade, like in Scenario 2, the amount of public financing for BLT projects may exceed the 2% guideline and could cause fiscal instability.

Figure 8-5 Forecast of Ratio of Public Financing of Signed and Planned Build–Transfer–Operate plus Build–Transfer–Lease Projects to Total Government Budget: Scenario 1 (%)



BTL = build–transfer–lease, BTO = build–transfer–operate.

Assumptions: 1. Calculation of amount of public financing of BTO: Based on signed and planned projects.
2. Estimated investment in BTL projects for 10 years: W3.8 trillion in 2005, W7.3 trillion in 2006, W5.5 trillion in 2007, W5 trillion in 2008, W5.5 trillion in 2009, W2.5 trillion in 2010, W1.7 trillion in 2011, W1.7 trillion in 2012, W1.7 trillion in 2013, W1.5 trillion in 2014, and W1.4 trillion in 2015.
3. Estimated government budget = W247 trillion in 2007, adjusted for 4% inflation rate.

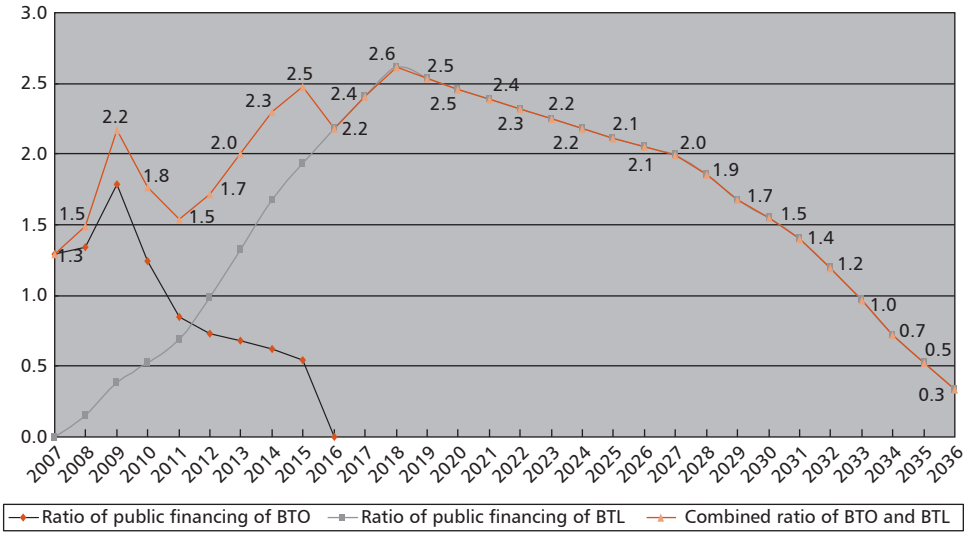
Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects*. Seoul. PIMAC, KDI.

Implications

This section estimated how much the implemented and planned PPP projects have resulted in government fiscal burdens and commitments, and focused on the effects on fiscal management in the past and in the future. In the analysis of fiscal commitments of PPP projects, the study forecasted how much impact future PPPs would have on the government's fiscal burdens based on the current PPP investment situation and future investment projections. It is important to comprehensively estimate and project the amount of the government's fiscal commitments because most of the PPP projects have received government financial support as a prerequisite.

The study estimated PPP effects on future fiscal commitments by categorizing the effects into three types. First, it estimated the amount of fiscal burden from BTO projects that have already been signed and the terms and conditions fixed. Second, it estimated the amount of fiscal commitments expected to accompany BTO projects currently being promoted or planned by the government. Third, it estimated the amount of future government payments for BTL projects being promoted under two scenarios (Scenario 1 and Scenario 2). Finally, the study added a comment on the amount of government disbursements needed for the minimum revenue guarantee (MRG) payments, which are similar to contingent liabilities.

Figure 8-6 Forecast of Ratio of Public Financing of Signed and Planned Build–Transfer–Operate plus Build–Transfer–Lease Projects to Total Government Budget: Scenario 2 (%)



BTL = build–transfer–lease, BTO = build–transfer–operate.

Assumptions: 1. Calculation of amount of public financing of BTO: Based on agreements + planned.
2. Estimated investment in BTL projects for 10 years: W3.8 trillion in 2005, W7.3 trillion in 2006, W5.5 trillion in 2007, W5.0 trillion in 2008, W10 trillion to be invested each year in 2009–2015.
3. Estimated government budget = W247 trillion in 2007, adjusted for 4% inflation rate.

Source: Jay-Hyung Kim et al. 2008. *Study on Performance Evaluation and Ex-post Management of PPP Projects*. Seoul. PIMAC, KDI.

The study further examined the idea of a ceiling on the total government disbursement for PPP projects. Except for Brazil, no country regulates the upper limit of government payments for PPPs by law or explicitly states a limit as part of a regulatory system. The study noted that international organizations, including the IMF, have recently recognized PPPs as important fiscal burdens and proposed fiscal rules to regulate them, and that the UK, a front-runner in PPPs, has kept the government PPP disbursement to around 2% of the total government budget. The study proposed that the Republic of Korea manage its PPP fiscal burden on a mid- to long-term basis by setting an annual safeguard ceiling on government PPP disbursements at 2% of the total government budget.

The results of the analysis suggest a few policy implications. First, the amount of public financing for already signed BTO projects is not yet at a level that can affect fiscal stability management since the forecast amount of public BTO project financing is expected to be far less than the 2% ceiling.

Second, the size of the fiscal commitment for planned BTO projects in the Medium-Term PPP Plan is within the 2% ceiling of fiscal stability. However, the amount of government financing could increase when the addition of signed and newly implemented BTO projects are taken into account.

Third, if the government carries out BTL projects limited to the total amount of W37.6 trillion in 2005–2015 and, after that, makes payments under Scenario 1, there will be no fiscal problem. However, if the government carries out BTL projects at a cost of an additional W10 trillion annually (for a total of W81.6 trillion) under Scenario 2, the government will face severe difficulty in maintaining fiscal stability. Scenario 2 would impact the government's fiscal operation with an increased burden on public financing over time. Therefore, it is recommended that the government concentrate resources on key BTL projects at a moderate level, instead of increasing public project investment by W10 trillion annually for a decade or longer.

Fourth, even with the aggregate investment amount of signed and planned BTO plus BTL projects, total fiscal commitments would stay within the 2% guideline in Scenario 1. However, if investment in BTL projects expands for a decade, as in Scenario 2, the amount of public PPP financing may create difficulties for the government to maintain fiscal stability.

Fifth, the discussion thus far has left the disbursements of MRG payments as contingent liabilities out of consideration, but the paper pointed out the possibility that additional disbursements of MRG payments could aggravate further the government's fiscal stability. The study stressed, therefore, that the government should take into account the additional fiscal burden of MRG payments when making policy judgments about the scale of future BTO and BTL projects.

Sixth, the study concluded that it would be more helpful for the government in securing fiscal stability and soundness to implement the most needed infrastructure projects for a certain period (for example, 5 years), pay the government disbursements, and continue with the remaining projects, instead of launching additional large-scale PPP projects during a short period of time.

Seventh, in order to monitor and implement the 2% ceiling on government PPP project financing, as well as maintain fiscal stability and sustainability, the following questions should be examined:

- Who evaluates the ceiling?
- When and how often is the ceiling evaluated?
- Is the ceiling mandatory or merely a guideline?
- How would PPP commitments affect fiscal stability and public debt?
- How should the ceiling be reported to the National Assembly and should the ceiling be subject to the assembly's approval?

Public–Private Partnerships as an Alternative Method of Fiscal Stimulus to Address the Global Financial Crisis

Background

Although private participation in infrastructure projects has steadily increased since the introduction of the public–private partnership (PPP) system in the late 1990s, the initiation of new PPP projects has declined sharply with the recent global financial crisis that began in late 2008. The volume of contracts signed fell sharply in 2008 and 2009, increasing the likelihood that the amount of PPP investment actually executed will shrink in the future.

Accordingly, the Government of the Republic of Korea has worked out measures for revitalizing PPP projects by helping with financing and reducing project risks from external factors, including abrupt changes in interest rates. It also has improved procedures for the implementation of the PPP projects now under way.

The First Revitalization Initiative

To ease the financial burdens from the global financial crisis, the first revitalization initiative, which revised the PPP Basic Plan, was announced in February 2009. Major items in the initiative are as follows.

Reducing Financial Burdens

First, the government eased the financial burdens on concessionaires by lowering the equity capital requirement ratio. According to the PPP Basic Plan, the minimum ratio of equity capital requirement was 25% for build–transfer–operate (BTO) projects and 5%–15% for build–transfer–lease (BTL) projects before the crisis. The first initiative decreased the ratio to 20% for BTO projects and 5% for BTL projects.

Second, the government expanded the upper limit of the payment guarantee provided by the Infrastructure Credit Guarantee Fund (ICGF) by 50% (from W200 billion to W300 billion) to help ease difficulties in debt financing for large-scale PPP projects.

Third, the government improved the system by easing regulations in case of change in composition of equity investors: projects that do not have minimum revenue guarantee (MRG) provisions are now exempt from refinancing profit sharing obligation in the case of simple changes in composition of equity investors. In the case

Table 9-1 The First Revitalization Initiative: Lowering Required Equity Capital Ratio

Classification	Present (%)	Revised (%)
Build–transfer–operate	25	20
(when financial investors account for 50% or more)	(20)	(15)
Build–transfer–lease	5–15	5

Source: Ministry of Strategy and Finance, Republic of Korea.

of projects that have MRG provisions, however, the government has decided to maintain the original criteria to help reduce excessive MRG levels through sharing of refinancing gain.

Easing Burdens from Abrupt Changes in Interest Rates

Prior to the first revitalization initiative, concessionaires had shouldered all risks resulting from interest rate changes, but the government introduced a measure to share certain parts of the interest rate risks in case there are abrupt changes in interest rates due to the market situation.[51]

For BTO projects, when there is a change of 0.5 percentage point or more in the base interest rate (in the case of 5-year bank bonds with credit rating of AAA, for example) in the concession agreement, the government can make up for the change. The level of compensation depends on the extent of interest rate fluctuation.[52] For BTL projects, the government has reduced the period for readjusting the benchmark bond yield (government bond) from 5 years to 2 years, while replacing or redeeming 60%–80% of excesses or shortages based on the interest rate gap of 50 basis points between government bonds and bank bonds.

Shortening of the Project Implementation Periods

To prevent delay in the negotiation period, competent authorities are required to complete the settlement of various points of contention and civil petitions through consultation with related agencies before they start negotiations with concessionaires. Also, the competent authorities can attach draft concession agreements when they announce requests for proposal (RFPs). The government encourages early completion of construction by concessionaires by allowing them to start operation earlier than scheduled and generating additional revenues.[53]

The Second Revitalization Initiative

Though the government began implementing the first PPP revitalization program in its endeavor to ease the financial crunch in February 2009, much of its focus has been mainly on short-term support measures; these include short-term funds and compensation for the difference in interest rates in the case where the borrowing rate

[51] This rule temporarily applies to projects commencing construction or reaching financial closure in 2009, depending on the negotiation between competent authorities and concessionaires.

[52] ±0.5%–±1.0%: compensate or redeem 60%; more than ±1.0%: compensate or redeem 70%.

[53] This rule temporarily applies to projects commencing construction in 2009.

exceeds the earnings rate. Further aggravation resulted from the declining attractiveness of investment, as the PPP project structure became high-risk and low-profit. This is the result of two factors. First, concessionaires need to bear the operational risk, which thus far has been shared with the government through the MRG system. Since the MRG was reduced after 2006 and finally ended, the private sector has had to shoulder its own revenue risk. Second, strengthened competition has curtailed profit rates. The profit rate (fixed, after tax) of road projects, for example, has been drastically reduced from 8.56% (1997–2005) to 5.15% (2006–2008).

To address these issues, the government announced in August 2009 three measures to create an enabling environment for active private investment through PPPs, while minimizing the financial burden on the government; these are (i) improvement in project structure, (ii) improvement of conditions for funding, and (iii) enhanced reliability.

Improvement of Public–Private Partnership Project Structure

One of the areas that improvement in project structure focuses on is the revitalization of supplementary and ancillary projects. The private concessionaire, first of all, needs to be provided with a motive to maximize the use of supplementary and ancillary projects in connection with the main project. Target projects can be negotiated either using the current itemized approach or a comprehensive approach, so as to increase the number of supplementary projects. The target project would be expanded to include those recognized by competent authorities so that user fees can be lowered. This necessitates revision of the PPP Act. Second, the role of competent authorities is further strengthened. When the competent authorities issue a public notice or announce a third-party proposal, they would be encouraged to develop supplementary projects and to carry out administrative procedures such as acquisition of land. Third, distribution of excess profits would be improved. The competent authority needs to set rules in the concession agreement, project by project, mindful of the amount of profits gained from supplementary and/or ancillary projects in similar categories, as well as its role in the process. Currently, a predetermined amount of profit goes to the competent authority (reductions in subsidy and user fee), and the excess profit is shared between the competent authority and the concessionaire according to a 50:50 ratio.

Project structure improvement also concentrates on making a special case of estimating compensation for termination of a concession agreement. The government has introduced a special temporary arrangement concerning compensation for the concessionaire to pay back the invested funds when the project agreement is terminated due to inevitable reasons. The modification in calculation method can be described as follows: when the agreement is terminated during the operational period, the method of depreciation of the invested private funds has been revised from the current declining balance method to the straight line method. This is in order to have the effect of increasing capability of raising senior debt by amplifying the security solvency of the project. It should also be noted that depreciation of the social overhead capital (SOC) needs to use the straight line method based on general accounting and tax transaction principles, such as the national accounting standards. But in the case where the agreement is terminated because of the concessionaire's fault, subordinated debt and capital should be excluded from estimation of the amount payable in order to ensure greater responsibility on the part of the private operator. These measures are applicable for new projects for 2009–2010 in

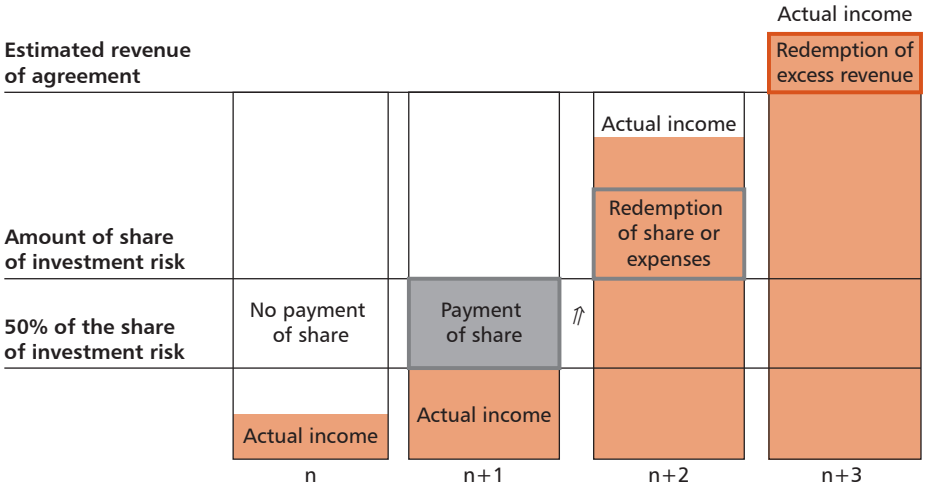
principle, but can be applied to projects for which financing agreements are not yet signed, according to the judgment of the competent authorities.

Introduction of a new investment risk sharing method, called the new risk-sharing structure, is another measure intended to mitigate the project risk on the part of the private company. Under the new risk-sharing structure, the government shares investment risk with the private company by compensating the base (raw) cost of the project, calculated as the sum of private investment cost and the interest rate on government bonds. The government payment is made for the amount of shortfall in the actual operational revenue compared to the share of investment risks by the government. When the actual operational revenue exceeds the share of investment risks, government subsidies are redeemed on the basis of and within the limit of the amount previously paid. Subsidies are provided only when the actual operational revenue surpasses 50% of the share of investment risks. Applicable projects are government-solicited projects with significant public benefits (e.g., projects with the appropriate cost–benefit ratio). Concurrent with the introduction of the new risk-sharing structure, the MRG system was ended.

Figure 9-1 Mechanism of the New Risk-Sharing Structure

$$\text{Share of investment risk} = \text{private investment cost}^{a} \times \frac{\text{Interest rate of gov't bonds}^{b}}{1 - (1 + \text{interest rate of gov't bonds})^{-\text{operation period}}}$$

[a]private investment cost = total private investment cost – during construction interest
[b]average interest rate of 5-year government bond during construction period



gov't = government, n = specific year when the mechanism begins to be applied.

Source: Ministry of Strategy and Finance, Republic of Korea.

Improvement of Conditions for Funding

As the government support measures for small and medium-sized companies, Korean financial institutions are required to lend a certain amount to small and medium-sized companies in order to satisfy the required ratio of loan amount for small and medium-sized companies to total loan amount. As a result, financial institutions have difficulty offering loans for PPP projects, given that they are classified as loans

for large companies. Consequently, as a response to demands for improvement in PPP funding and procurement, the government has introduced measures to reduce burdens caused by regulations and restrictions on financial institutions. One such attempt is the exclusion of the amount of loans for PPP projects from the parameters for estimating loans for small and medium-sized businesses (loan amount for small and medium-sized companies/total amount of loans). The Financial Supervisory Service's rule for this purpose has been completed.

Also, active investment in PPPs by financial companies is encouraged by including contributions to PPP investment in one of the evaluation categories of the management performance evaluation for financial institutions. For this purpose, enforcement regulations of the Financial Supervisory Service were revised.

Also, creation of infrastructure funds is encouraged by lowering the minimum capital requirement (from W10 billion to W1 billion), which involves revision of the PPP Enforcement Decree.

Under another measure to improve conditions for PPP funding, the government is seeking to revitalize issuance of infrastructure bonds by expanding bond issuance organizations to include securitization companies, reflecting the specific character of PPP projects. As such, investors are expected to be diversified. This will require revision of the PPP Act.

The ICGF is granted an enhanced role through expansion of the targets of guarantees and means of raising funds, while providing legal grounds for responsible operation (this requires revision of the PPP Act). Such expansion of targets of guarantees for infrastructure bonds implies an enlargement—from infrastructure bonds issued by concessionaires to those issued by financial institutions or securitization companies. This will provide grounds for receiving deposits from other funds to secure emergency liquidity, as well as a basis for active operation of funds. It will also contribute to greater responsibility by creating legal grounds for liability of reparation and exemption from obligation.

The government seeks to create a public investment fund by reviewing a plan to create an investment fund of W1 trillion through the Korea Development Bank and private financial resources. The government expects to expand relatively high-risk investment such as equity investments or subordinated loans.

Taxation support is actively being reviewed to extend the period of tax breaks and expand support for PPP projects in order to prevent increases in user fees and expand the investment base (this will require a revision of the tax exemption law). The period for applying a 0% value-added tax rate for PPP projects will be extended up to 3 years (from the end of 2009 to the end of 2012). The period of separate taxation of interest earnings from infrastructure bonds will likewise be extended up to 3 years (from the end of 2009 to the end of 2012). Beneficiaries are also expected to be enlarged (from maturity period of over 15 years to over 7 years). Since most of the infrastructure bonds issued in the past have maturities of 8–17 years, the expansion of beneficiaries for this special taxation provision will benefit more bond holders.

Lastly, regulation of refinancing is expected to be eased in order to facilitate financing. As a temporary measure, refinancing gains will not be shared with the government

if all of the following conditions are satisfied: (i) the expected return of investment (ROI) after refinancing is smaller than ROI in the financial model of concession agreement, (ii) no government financial support (MRG or construction subsidy) is provided, and (iii) the level of user fee is lower than 1.2 times that of government-procured projects. This measure would only be applied to projects that initiate construction in 2009–2010 and conclude financial agreement after the revised Basic Plan.[54]

Enhancement of Reliability

To enhance reliability of PPPs for the general public, measures to mitigate the burden on taxpayers for existing MRG programs have been introduced to reduce excessive financial burden caused by MRGs. One of these measures is to encourage efforts to reduce MRGs through refinancing. This requires SPCs to report to the competent authorities every half year on any occurrence that necessitates refinancing. A system for requesting refinancing by the competent authority also needs to take place.[55] Secondly, MRGs are expected to be reduced through increased income and reduction in expenditures. Various measures for increasing income, such as improvement of the service charge systems, opening additional interchanges, and developing supplementary projects have been devised. Field examinations are conducted by the competent authority on the operation of projects with a heavy MRG burden; one of the items examined is the adequacy of operational expenses.[56] A feasibility study is conducted on reducing the MRG and user fee by adjusting the period of operation.

The government plans to establish and operate a neutral dispute arbitration organization for fast and fair resolution of disputes (this requires revision of the PPP Act), tentatively named Dispute Arbitration Committee for PPP Projects. The committee intends to conduct fair arbitration of disputes that are difficult to be settled by the parties involved because of disagreements over unexpected incidents. Currently, while the opportunities for disputes are increasing because of the extensive period of PPP projects (20–50 years) and changes in business circumstances, there exists no extralegal option for resolving disputes. Moreover, other industrial sectors in the nation are operating extralegal dispute arbitration systems, such as the International Contract Dispute Resolution Committee, Construction Dispute Resolution Committee, and environment dispute resolution system; these provide the basis for the establishment of such a committee in the PPP arena.

Other Institutional Improvement

To revitalize PPP projects, the government should undertake other institutional improvement measures. For example, PPP projects should be expanded to include green SOC so that private companies can actively invest in environmental infrastructure projects (this requires revision in the PPP Enforcement Decree). This may include construction of bicycle paths, new renewable energy facilities, and restoration of ecological streams.

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[54] The Korea Development Bank provides W1 trillion to special purpose companies (SPCs) temporarily for 1 year in place of commercial financial institutions.

[55] The competent authority would request that the SPC undertake refinancing if it finds better conditions for funding after financial closure (introduced in the United Kingdom, October 2008, to encourage application for projects before October 2008).

[56] Projects that show more than a 50% difference between actual demand in the previous year and projected demand.

Table 9-2 Revised Policy on Coverage of Compensation for Proposal Preparation Costs

Present	Revised
– One unsuccessful bidder: Compensation of 25% of basic design costs – Two unsuccessful bidders: Compensation of 30% and 20%, respectively	– One unsuccessful bidder: Compensation is 35% of basic design costs – Two or more unsuccessful bidders: Compensation is 40% of the basic design cost for the first unsuccessful bidder; the compensation is lowered by 10% per rank for the other unsuccessful bidders.

Source: Ministry of Strategy and Finance.

Also, the government has expanded the scope of compensation for proposal preparation costs to encourage more vigorous competition in the bidding process.

The mechanism of BTL performance evaluation is revised to clearly divide the evaluation of availability and that of service performance, thus evaluation results are separately applied to the payment of lease fee and operational expenses. This will expedite funding by removing the possibility of reducing lease fees for poor performance of concessionaire.

Results of the bid evaluation should be disclosed; this should help enhance the objectivity and reliability of the evaluation process.

Value for money (VFM) tests should be improved and made more reasonable in deciding PPP projects. Analysis of financial burdens and level of user fees should also be provided so that responsible agencies can use the information to decide on feasibility of PPP projects. A system of revalidating VFM test results should be introduced. More precisely, the VFM should be revalidated prior to signing the concession agreement when conditions of the project, such as total cost and routes, are substantially altered from the original proposal. An example would be where the total projected project cost increases by more than 20%, major routes are modified, and estimated demand is changed by more than 30%.

Lessons Learned and Challenges Ahead

Lessons Learned

The public–private partnership (PPP) market in the Republic of Korea has continued to grow as the government has actively promoted PPP projects as an alternative method to supplement public investment. The government has tried to allocate strategically its limited resources and therefore has encouraged the role of the private sector where its efficiency and creativity can be effectively utilized. With the strong initiative of the government, PPP projects have contributed to providing infrastructure facilities and public services where large-scale investments were urgently needed for national economic development and growth. In 2008, PPP investment in the social overhead capital (SOC) sector amounted to W3.7 trillion, about 18.4% of the total public and private investment in SOC; in 1995, it was merely W0.4 trillion when the PPP program was first introduced.

The Republic of Korea enacted the PPP Act in 1998 to regulate the PPP implementation process and systematically support PPP projects. Since the formal PPP program was first introduced with the enactment of the PPP Act, the act has gone through two major revisions to reflect market developments and government needs. With the revisions of the act and updates of the PPP Enforcement Decree and the PPP Basic Plan, the program has been continuously improved and the institutional framework developed in the direction of facilitating the procurement process, promoting private participation, and improving transparency and value for money (VFM).

One of the features of the PPP program in the Republic of Korea is that both the concession-type (build–transfer–operate (BTO) method) and the service purchase-type (build–transfer–lease (BTL) method) projects are actively implemented. Usually, concession-type PPP projects are more popular in developing countries where economic infrastructure, such as roads, railways, and ports, are underdeveloped. On the other hand, service purchase-type PPP projects, which require stable government payments, are more common in developed countries. The United Kingdom and Australia are among the leading countries in implementing service purchase-type PPP for social infrastructure. With the revision of the PPP Act in 2005, Korea introduced the BTL method and promoted its use in educational facilities, military residences, and environmental facilities, among others.

In the case of BTO, 203 projects with a total investment cost of W66.1 trillion are in various stages of implementation, as of September 2009. Of those, 110 projects are completed, 44 are under construction, 19 are preparing to begin construction, 24 are under negotiations, and 6 are preparing to announce RFPs. Among the 203 projects, concessionaires for 173 projects have been chosen and their concession agreements signed. By sector, the projects break down as follows: 61 roads, 11 railways, 17 ports, and 64 environmental facilities, 5 logistics facilities,

and 45 other types of construction, including parking lots, culture, and tourism projects. Of the 203 projects, 86 are national projects and 117 are local projects.

In the case of BTL, concession agreements for a total of 242 projects have been signed, for total project costs of W12.2 trillion, as of September 2009. This is remarkable progress considering that the BTL method was only introduced in 2005. Among the 242 projects, 142 projects are currently in operation, 92 are under construction, and 8 are preparing to begin construction. The number of projects by sector shows that 136 are primary and middle schools, 56 are environmental sewage facilities, 10 are military residential facilities, and 18 are cultural facilities.

To examine the operational performances of PPP projects, surveys have been conducted on major stakeholders of BTO and BTL projects. The results of the survey on BTO road projects show that different groups of stakeholders have different perceptions about performance. In the survey of users, those who use BTO roads were largely satisfied with their operational services. Users appreciated that BTO roads provide the advantage of shorter travel time compared with alternative roads, despite more expensive tolls than government-financed roads. This result implies that the reduction of tolls appears to be the most important task to increase further the satisfaction level for BTO roads. A survey of project companies, competent authorities, and experts demonstrated a perception gap regarding BTO road projects. While project companies and experts have positive perceptions of the performances of BTO projects, competent authorities provided negative responses. This can be attributed to the financial burden on the government caused by subsidies and minimum revenue guarantees (MRGs), and additional administrative burdens caused by higher tolls, outside auditing, and civil complaints.

In a survey on BTL school facilities, results show that satisfaction levels were high among facility users, such as students, principals, and administrative chiefs regarding school construction and operation. There were also positive appraisals about attainment of the purposes of BTL project's introduction and VFM. It is noteworthy that the high satisfaction levels indicate that this new business area of service purchase-type projects is successfully taking root in the Republic of Korea.

One of the most important rationales for implementing PPP projects is utilization of the efficiency and creativity of the private sector. In order to analyze whether PPP projects have realized efficiency from the perspectives of users, concessionaires, and the government, this study examined various aspects of PPP projects, including user fees, level of competition, and project internal rates of return.

The key results include: (i) user fees of PPP facilities were relatively high compared to those of publicly financed projects, but the difference has been decreasing over time, indicating that projects have become more efficient; (ii) the returns to private participants relative to the risks they bear became tighter as the number of bidders has increased, thus intensifying competition in the bidding process; and (iii) the MRG level provided by the government has decreased over time, thereby reducing the government's burden. These results indicate that the efficiency of PPP projects has increased as the market has matured and experiences have accumulated. The improved efficiency of PPP projects has also been reflected in concession agreements. Concession agreements have developed in the direction of better protecting the interests of users and reducing the uncertainty for private participants as well as for the government.

This study also examined the impact and contribution of PPP projects to the national economy in three respects: (i) contribution to economic growth resulting from the input of private capital, (ii) contribution to social welfare resulting from the delivery on time and early realization of social benefits, and (iii) contribution to reducing the government's fiscal burdens through improving VFM.

On the effects of PPP investment on economic growth, it is estimated that private financial resources of more than W20 trillion were invested through PPP projects, as of the end of 2008, resulting in an estimated gross domestic product (GDP) growth of 0.198% based on the 2008 standard price.

PPP investments have enabled the early realization of social benefits. For instance, 14 roads started operation about 2 years earlier, thanks to PPP procurement, resulting in the early realization of social benefits worth about W1.45 trillion. Using government funding alone, it is expected that the completion and operation of these roads would have been delayed for a considerable period of time. If the realization of benefits from PPP road projects is presumed to be 3 years earlier than from government-financed road projects, then the benefit of early road completion is estimated to be about W2.47 trillion; if the PPP method resulted in roads being built 4 years earlier, then the benefit would be about W3.3 trillion.

As for cost efficiency and the VFM for PPPs, results of several experimental VFM tests were examined. The results show that the VFM for private proposals for 66 BTO projects was estimated to reach about W891 billion. Furthermore, the VFM for PPP alternatives (adjustment of some conditions of original private proposals in favor of the government) was estimated to be about W1,548 billion. For selected BTO projects, the study estimated that 11 BTO projects, for which concession agreements had been concluded after conducting VFM tests, resulted in an additional ex-post VFM worth W142.5 billion. The VFM for BTL projects examined was estimated to be W89.6 billion. Also, analysis of BTL projects indicated that they reduced both cost and time overruns. Specifically, total project costs of selected BTL projects have been reduced by 10.18% and the construction period shortened by 8.04%, enjoying an advantage over government-invested projects in efficiency.

As explained above, PPPs in the Republic of Korea have played a significant role in providing infrastructure facilities and public services, while complementing limited government resources and improving VFM. While some criticism has been raised in the process of PPP development, it is hard to deny that PPPs have significantly contributed to economic growth and social development in the Republic of Korea.

There are many factors that explain the success of PPPs in the Republic of Korea. The solid legal framework and institutional settings are among the most important. The hierarchy of the legal arrangements is composed of the PPP Act, the PPP Enforcement Decree, and the PPP Basic Plan. The PPP Act and the PPP Enforcement Decree, the principal components of the legal framework, clearly define eligible infrastructure types, procurement types, procurement process, the roles of the public and private parties, policy supports, etc. Under the PPP Act, the PPP Basic Plan and PPP Implementation Guidelines are formulated by the Ministry of Strategy and Finance (MOSF) with the support of the Public and Private Infrastructure Investment Management Center (PIMAC). The Basic Plan can be updated and adjusted more often reflecting market conditions and the government needs. The Basic Plan

provides PPP policy directions, details of PPP project implementation procedures, regulations for financing and refinancing projects, risk allocation mechanism, various government support measures, etc.

The PPP Act is a special act that supersedes other acts. The act exempts PPP projects from strict government regulations in national property management and allows a special purpose company to play the role of competent authority. For example, the PPP Act includes the provision of Authorization and Permission under Other Laws, which aims to reduce the time and cost for obtaining authorization and permissions and to facilitate implementation procedures for PPP projects. According to this provision, if the competent authority has publicly issued a Detailed Engineering and Design Plan for Implementation (DEDPI), then the authorizations and permissions for the PPP project required by related laws are considered granted. This provision has been considered one of the critical factors for promoting PPP projects by streamlining implementation procedures.

One important aspect of the PPP institutional setting is that the roles of different government agencies in the process of PPP project procurement are clearly defined and distinguished in the laws and regulations. The MOSF is the "control tower" for national PPP programs and chairs the PPP Review Committee (PRC), which consists of members from procuring ministries and private sector experts. The committee, chaired by the minister of strategy and finance, convenes whenever needed to make important decisions on PPP policies and major projects. Procuring ministries are in charge of developing sector-specific PPP plans and implementing projects. Local governments can procure local PPP projects under the PPP Act. To ensure transparency and consistency, large-scale projects are classified as national projects and managed by the MOSF and the PRC. The clearly defined procurement processes and roles of related government bodies in the Republic of Korea can be distinguished from the procedures in some developing countries where different procuring ministries or local governments have different PPP regulations and implementation procedures, which discourage the private sectors from actively participating in PPP projects. As the budget authority, the MOSF has been able to induce procuring ministries to utilize the PPP method where appropriate in the budget allocation process. Since individual projects are implemented and administered by each procuring ministry, the MOSF sometimes has difficulty in managing the overall PPP project process. Therefore, the MOSF exercises control through public expenditures in the implementation stage. Ministries are required to spend within the limits set in the budget implementation plan. When deemed necessary, the MOSF is able to postpone or block part of the expenditures for PPP projects.

Another important component of the PPP institutional setting is the role of PIMAC, the Korean PPP unit. It has played an important and independent role in the process of PPP project procurement and policy development. The mission and roles of PIMAC are prescribed in the PPP Enforcement Decree. They include supporting the MOSF in the formulation of the PPP Basic Plan; supporting the competent authorities and ministries in the procurement process, such as assessment of feasibility and the VFM for potential PPP projects; formulation of the request for proposal (RFP) and designation of the concessionaire; evaluation of project proposals; negotiation with a potential concessionaire; promoting foreign investment in PPP projects through consultation services and other related activities; and developing and operating capacity-building programs for public sector practitioners. Technical assistance and

reviews of each procurement step by PIMAC ensure consistency and quality among various PPP projects. By being involved in various stages of PPP procurements, PIMAC has contributed to the success of the PPP program by assisting the public and private sectors and promoting infrastructure projects.

After the Asian financial crisis in the late 1990s, the Government of the Republic of Korea introduced financial support measures for PPP projects, such as the MRG program as a risk-sharing mechanism between the public and private sectors. As the PPP market matured and public criticism of excessive government fiscal burdens intensified, the government gradually reduced the level of MRGs, while introducing another type of risk-sharing measure to replace it. The recent global financial crisis has frozen the national economy as well as the PPP market. The initiation of new PPP projects and the signing of contracts for existing projects declined sharply as risks and uncertainties in the financial market rapidly increased. To counter the crisis, the MOSF announced several revitalization measures to assist PPP projects experiencing difficulties in financing by reducing project risks resulting from external factors. Under the revitalization plans, PPP projects are expected to function as an alternative means of fiscal stimulus, alleviating the fiscal burdens on the government. The revitalization measures include both financial and nonfinancial support, including interest rate risk sharing, an increase in the upper limit of the infrastructure credit guarantee amount, provision of short-term loans by the Korea Development Bank, lowering of the minimum equity capital ratio, shortening of the procurement process, change in the termination calculation method, etc. The active role and policy support of the government have demonstrated a strong commitment to the PPP program, thus strengthening the private sector's confidence in participating in PPP projects.

Finally, the active participation of the private sector, mostly domestic companies, can be seen as one of the features of the PPP market in the Republic of Korea. The proportion of unsolicited projects compared to solicited projects is high in the BTO area, which is rare for developing countries. Although solicited projects are more desirable in that the government can initiate PPP projects based on its overall investment plans and priorities rather than based on the profitability of individual projects, unsolicited projects have advantages in that they encourage private sector creativity and efficiency. Since VFM tests and the competitive bidding process are also applied to unsolicited projects, the VFM for unsolicited projects is usually improved in the procurement process. On the financial side, several infrastructure funds have been established under the PPP Act. As one of the diverse financing sources, the funds enable individual investors to participate in infrastructure investment. In the Republic of Korea, the private sector has been actively involved in PPP projects with the expectation that new PPP projects will continue to be delivered to the market and prospects for the future PPP market remain positive.

Challenges Ahead

As the scale of PPP investment and related government commitments have rapidly increased, a need to establish fiscal rules for PPP projects has become critical to maintain sound and stable fiscal management. Conventionally, PPP investment has been treated separately from publicly financed investment and has not come under direct regulation as government expenditure. Because large parts of future government obligations on PPPs are long-term commitments, such as government payments for

BTL projects and MRG payments for BTO projects, it is important to examine from a fiscal perspective whether a government can maintain fiscal adequacy and stability while promoting PPP projects. When the government drives a large-scale PPP project forward involving large-scale fiscal commitment, the total project amount must be limited to a certain level suitable for maintaining fiscal soundness and sustainability—this is known as a safeguard ceiling.

The Five-Year National Fiscal Management Plan (2007–2011) of the Government of the Republic of Korea sets a limit to the overall size of the PPP program. Following the United Kingdom practice, the total annual government payment on PPP projects is limited to less than 2% of the total government budget. The current forecast on PPP project suggests that the ratio will reach up to 1.9%, which means the government can maintain future PPP payments within a sustainable level.

As for the 2% ceiling, there remain some issues to address for its effective practicing and monitoring, including: (i) who evaluates the ceiling, (ii) when and how often is the ceiling evaluated, (iii) should the ceiling be mandatory or not, and (iv) how should the ceiling be reported to the National Assembly and should it be approved by that body. Also, detailed guidelines for implementing the ceiling will need to be developed.

With regard to BTL-related financial obligations, the government has revised the PPP Act, making future government payments for BTL projects subject to review and approval by the National Assembly. This will considerably improve transparency and strengthen fiscal discipline for implementing BTL projects, but more effort will be needed to assess and disclose comprehensive PPP-related fiscal burdens and risks, including contingent obligations. The comprehensive disclosure requirement for PPPs recommended by the International Monetary Fund is a good standard for reference. Related to this issue is the accounting treatment of PPPs. There is no globally accepted accounting rule for PPPs. When the government introduces accrual basis accounting beginning in 2011, it is argued that parts of future government payments for BTL projects should be recorded as assets and related liabilities on the government balance sheet. In deciding accounting principles, not only the technical nature of the payments, but also the impact and implications of the newly introduced principles should be thoroughly examined. This issue is currently under review and is expected to be concluded in the near future.

Another issue to address is ex-post management of PPP projects. So far, most of the government's efforts have focused on improving the PPP procurement process from project initiation to the construction stage, and relatively little attention has been paid to the operational phase. Currently, competent authorities are in charge of managing and monitoring service performance of individual projects. As many projects enter the operational phase, however, strengthening ex-post management and monitoring has become an important issue. Strict monitoring is required because a large part of government payments and support are associated with operational performance in the forms of BTL service payments or MRG payments. Since common issues and problems arise in the operational phase, it will be efficient and helpful to develop general and sector-specific guidelines for ex-post operation and management of PPP projects. Also, systematic management of overall projects will be made possible through establishing a centralized information and database management system. It may be useful to create a specialized body within the government to manage and assist operational PPP projects.

Also, several issues have been raised regarding refinancing and contract renegotiation in the construction and operational phases. Since refinancing is initiated by the private sector for early realization of financial profits, the government must give extra care to ensure that refinancing does not cause financial instability for the project or worsen the benefits to the public users. Therefore, the government has set clear standards and principles for refinancing.

Although it is desirable to maintain contract terms throughout the concession period to reduce uncertainty, renegotiation may be inevitable for some PPP projects. A PPP project involves a long-term contract, and substantial changes of the business environment or policy objectives may require contract changes for continuation of the project and improvement of VFM. Therefore, a standard concession agreement should be developed to include details of renegotiation conditions to provide flexibility for long-term contracts.

There are more issues to address besides what have been discussed in this volume. With 15 years' experiences in PPP project initiation and management, the Republic of Korea has succeeded in establishing the institutional setting for a mature PPP market. However, the government is still facing many controversial issues and challenges that need to be resolved in order for the PPP program to move forward to a more advanced stage. The system should continue to be improved in the direction of maximizing benefits and VFM of PPP projects for the government, private participants, and the public, while minimizing the downsides and risks.

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Appendix 1

Public–Private Partnership Progress Report Forms

Table A1-1 Public–Private Partnership Project Progress Report Form: (1) Project Status

Category	Contents		
1. Project outline			
• Location			
• Scale			
• Purpose			
2. Total project cost (fixed)	KRW 000 billion (based on the fixed price of YY/MM)		
• Construction subsidy (fixed)	KRW 000 billion/00% (against total project cost)		
• Total private project cost (fixed)	KRW 000 billion/00% (against total project cost)		
3. Total investment cost (current)	KRW 000 billion (based on YY/MM, under the assumption that the inflation is 00%)		
• Construction subsidy (current)	KRW 000 billion/00%		
• Total private investment cost (current)	KRW 000 billion/00%		
– Debt (current)	KRW 000 billion/00%		
– Equity (current)	KRW 000 billion/00%		
4. Rate of return			
• Pre-tax real rate of return	00%		
• Pre-tax ordinary income	00% (under the assumption that the inflation is 00%)		
• After tax real rate of return	00%		
• After tax ordinary income	00% (under the assumption that the inflation is 00%)		
5. Minimum revenue guarantee			
• Guarantee period	Maximum 00 years		
• Level of guarantee	Minimum 00% for 00 years, 00% for the subsequent 00 years		
• Condition for guarantee	Excluded when actual result/Estimate revenue is below 00%		
• Guaranteed actual results		**2005**	**2006**
	Estimate/real operating revenue	00%	00%
	Minimum revenue guarantee payment	KRW 00 billion	KRW 00 billion
6. User fee			
• Initial user fee	Road project examples: 000 (KRW) for small-sized, 000 (KRW) for middle-sized, 000 (KRW) for large-sized		
• Adjustment of user fee	Under the assumption that the inflation is 00%		
• Others points to be concerned	Reduction and exemption of user fee flexible fee system		

continued on next page

Table A1-1 *continued*

Category	Contents
7. Project period	
• Construction period	0000 (year) (from '00 (year) 00 (month) to '00 (year) 00 (month)
• Operating period	0000 (year) (from '00 (year) 00 (month) to '00 (year) 00 (month)
8. Competition bidding	
• Number of bidders	0 (000 Consortium 000 Consortium, 000 Consortium)

YY/MM = year/month.

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure.* Seoul.

Table A1-2 Public–Private Partnership Project Progress Report Form: (2) Project Progress

Progress	Schedule
Solicited Projects	
1. Preliminary feasibility study	'00 (year) 0 (month) (Name of the implementing authority: 000)
2. Feasibility study	'00 (year) 0 (month) (Name of the implementing authority: 000)
3. Review by PIMAC	'00 (year) 0 (month)
4. Designation of potential project and invitation of the private sector	
• Period for announcement	From '00 (year) 0 (month) 0 (day) to from '00 (year) 0 (month) 0 (day) (00 days)
5. Designation of potential concessionaire	'00 (year) 0 (month) 0 (day)
• Competent authority for negotiation	000 (contact person: 000, TEL: 000-0000)
6. Conclusion of the concession agreement and designation of concessionaire	'00 (year) 0 (month) 0 (day) (The concession agreement documents should be attached in the case of conclusion)
7. Grants approval for DEDPI	'00 (year) 0 (month) 0 (day)
8. Construction commencement/ stage of completion of construction in progress	'00 (year) 0 (month) 0 (day) / 00% has progressed (As of late June 2005)
9. Completion of construction and the date of commencement of operations	'00 (year) 0 (month) 0 (day) / '00 (year) 0 (month) 0 (day)
Unsolicited Projects	
1. Submission of RFP	'00 (year) 0 (month) 0 (day)
2. Review of RFP	'00 (year) 0 (month) (Name of the authority concerned: 000)

continued on next page

Table A1-2 *continued*

Progress	Schedule
3. Announcement of proposal contents	
• Period for announcement	From ‘00 (year) 0 (month) 0 (day) to From ‘00 (year) 0 (month) 0 (day) (00 days)
4. Designation of potential concessionaire	‘00 (year) 0 (month) 0 (day)
• Competent authority for negotiation	000 (Contact person: 000, TEL: 000-0000)
5. Conclusion of the concession agreement and designation of concessionaire	‘00 (year) 0 (month) 0 (day) (The concession agreement documents should be attached in the case of conclusion)
6. Grants approval for DEDPI	‘00 (year) 0 (month) 0 (day)
7. Construction commencement/ Stage of completion of construction in progress	‘00 (year) 0 (month) 0 (day) / 00% has progressed (As of 00 (year))
8. Com	‘00 (year) 0 (month) 0 (day) / ‘00 (year) 0 (month) 0 (day)

DEDPI = Detailed Engineering and Design Plan for Implementation, PIMAC = Public and Private Infrastructure Investment Management Center, RFP = request for proposal.

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure.* Seoul.

Table A1-3 Public–Private Partnership Project Progress Report Form: (3) Concessionaire—Composition of Investors

(Unit: W billion, %)

☐ PPI corporation: (e.g.) ☐ ☐ ☐ Highway (Inc.)
☐ Compositions of investors

Initial Investment			Investment after the First Refinancing		
Company	Amount	Ratio	Company	Amount	Ratio
Total			**Total**		

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure.* Seoul.

Table A1-4 Public–Private Partnership Project Progress Report Form: (3) Concessionaire—Financing: (a) Initial Financing and after First Refinancing

Initial Investment	Type			Amount	Ratio
Private Investment Cost	Debt	Subtotal			
		Loan from financial			
		Social overhead capital (SOC) bond			
		Others			
		Subtotal			
	Equity	Construction companies			
		Operating companies			
		Financial investment	Bank insurance companies		
			Pension fund		
			Infrastructure fund		
			Others		
Total					**100%**

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure.* Seoul.

Table A1-5 Public–Private Partnership Project Progress Report Form: (3) Concessionaire—Financing: (b) Progress on Attracting Foreign Investment (Actual Results or Plan)

Investment Type	Investors	Amount	Ratio (Total investment/ Total loan)	Remarks (Confirmed/ In progress)
	Total			
Investment	Subtotal			
	000 (company title)			
	000 (company title)			
Loan	Subtotal			
	000 (company title)			
	000 (company title)			

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure.* Seoul.

Table A1-6 Public–Private Partnership Project Progress Report Form: (3) Concessionaire—Financing: (c) Current Conditions on Pension and Fund Investment

Investment Type	Investors	Amount	Ratio (Total investment/ Total loan)	Remarks (Confirmed/In progress)
	Total			
Investment	Subtotal			
	Loan			
	00 (Pension title)			
Loan	Subtotal			
	00 (Pension title)			
	00 (Pension title)			

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure.* Seoul.

Table A1-7 Public–Private Partnership Project Progress Report Form: (4) Financing and Government Subsidy Conditions

	Total	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	Remarks
❑ Total investment cost																
• Total projects cost																
– Construction subsidy (fixed)																
– Private investment cost																
• Interest during construction + reserve fund																
❑ Total investment cost																
(Total private investment cost)																
• Equity																
– Foreign capital																
– Domestic capital (construction subsidy)																
• Subsidy by central government																
• Subsidy by local government																
❑ Government support (current)																
(Total national treasury)																
• Design cost																
• Compensation cost																
– Land use fee																
– Fishery rights, etc.																
• Construction subsidy																
• Operating revenue supports fee																
• Other subsidy																
(Total local expense)																
• Design cost																
• Compensation cost																
– Land use fee																
– Fishery rights, etc.																
• Construction subsidy																
• Operating revenue supports fee																
• Other subsidy																
(Financial loan)																

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure.* Seoul.

Table A1-8 Public–Private Partnership Project Progress Report Form: (4) Financing and Government Subsidy Conditions: (a) Investment Plan and Actual Results

Support	Total	2004		2005		2006		2007		2008
		Plan	Actual results	Plan	Actual results	Plan	Actual results	Plan	Actual results	Plan
❑ Government subsidy										
• National treasury (budget)										
• Local expense (budget)										
• Others (loan, etc.)										
❑ Private investment										

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure.* Seoul.

Table A1-9 Public–Private Partnership Project Progress Report Form: (5) Operating Revenue

Support	Total	2004		2005		2006		2007		2008
		Plan	Actual results	Plan	Actual results	Plan	Actual results	Plan	Actual results	Plan
• Demand amount										
• Revenue amount										
• Amount of revenue guarantee										

Source: Ministry of Strategy and Finance. 2009. *Basic Plan for Private Participation in Infrastructure.* Seoul.

Appendix 2

Institutional Settings for Public–Private Partnerships in Other Countries

Box A2-1 Institutional Settings for Public–Private Partnerships in India

Background of Public–Private Partnerships in India

Public–private partnership (PPP) infrastructure projects in India are not very old; in the 1990s only a handful were developed. The initial euphoria of these first projects dampened after most of them experienced significant delays and cost increases. This was highlighted by the spectacular demise of Enron's Dabhol power project. The second wave of PPP projects after 2002 followed a more systematic approach, particularly in designing contracts and procuring private sector partners. The Government of India and many other agencies have now standardized the procurement and concession frameworks for many types of projects. In addition, specialized financial institutions that deal with such projects have developed appraisal systems to assess and price risk. Capacities have also been built up among consultants, advisors, and certain "nodal" government departments charged with handling PPP projects. In terms of maturity, the market is more developed in the energy (generation) and transport (roads, ports) sectors, and comparatively less so in sectors such as power distribution, urban infrastructure, and social infrastructure.

There is a clear policy directive from the central and state governments that infrastructure creation can be accelerated through PPPs. India's emphasis on PPPs can be seen from various policy measures set in place at the central (federal) and state levels. India's Planning Commission, which is the country's highest planning body, has set up a separate Committee on Infrastructure, headed by the prime minister. This committee is standardizing procurement documents, such as the request for qualification, request for proposal (RFP), and concession agreements for various types of projects, such as roads, ports, and airports (presently in draft form). India has also set up funding mechanisms to make PPP projects financially viable through viability gap funds. India has also set in place project development funds that enable state governments to carry out feasibility studies and procurement processes for PPP infrastructure projects. State governments have also established policies and legislation for PPP infrastructure projects. For instance, the Karnataka state government has an infrastructure policy that, among other things, stipulates that "infrastructure projects shall be first examined for being amenable to PPP, before consideration for budgetary support." The Andhra Pradesh state government has enacted special legislation that facilitates infrastructure projects through PPPs—the Pradesh Infrastructure Development Enabling Act of 2001. Many other states have followed these policy and legislative precedents.

Legal Framework

In India, there are no PPP laws at the central level, although some states have enacted certain laws that cater to PPP infrastructure projects. There is no policy at the central level, but there are certain guidelines that govern documentation or funding support for PPP projects. Also some states have instituted either a policy or legislation that governs PPP projects.

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Box A2-1 *continued*

Organization of Decision Process

There is no fixed format for the PPP project procedures, and variations are large.

- Large projects may have their own high-level committee composed of political appointees in high office and/or senior bureaucrats.
- The project is typically steered by a government agency, under the aegis of its administrative government department. A nodal officer in the agency usually anchors the project and also interfaces with the transaction advisors.
- There could also be a steering committee that assesses the process of studies and procurement and enables administrative decisions to be taken. In some cases, the steering committee only addresses technical issues and is therefore called a technical committee. The steering and/or technical committee would also assist in the bid evaluation stage.

At the central level, the Planning Commission and the Department of Economic Affairs are involved in tying together PPP initiatives at the central or state levels into some common framework.

PPP Units

The PPP units are located in the respective line departments. At the state level, some states have their own infrastructure departments and also some corporate bodies that have been instituted for developing PPP projects. The role of PPP units includes identifying, developing, procuring a private sector partner, and assisting in project implementation and monitoring. A scheme for setting up dedicated PPP cells in the states is being developed. Further, a mechanism for monitoring PPP projects is also being put in place.

Where available, the PPP units assist the government agency in conceptualizing the project, carrying out the project development work, assisting in selection of transaction advisors, and providing support in the tender process. However, access to the PPP unit is generally at the discretion of the government agency, and there is no formal requirement regarding the use of the PPP unit.

Procurement Schemes

Eligible Facility Types

The secretariat for the Committee on Infrastructure of the Planning Commission defines a PPP in the document Guidelines for Financial Support to Public–Private Partnerships in Infrastructure. The definition is "a project based on a contract or concession agreement, between a government or statutory entity on one side and a private sector company on the other side, for delivering an infrastructure service on payment of user charges." In other schemes and documents, this has been extended to cover annuity projects as well.

PPP projects are being used in various sectors: basic infrastructure (roads, power, etc.), social infrastructure (convention centers, healthcare, etc.) and extensions (food processing, agro-logistics, etc.).

Procurement Methods

The most commonly used PPP method in India is design–finance–build–operate–transfer. In this method, the private sector takes on the onus of designing, financing, building, operating, and maintaining the project facilities during the period of the concession agreement, including handover requirements.

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Box A2-1 *continued*

Government Support

Numerous government mechanisms provide support for a PPP project. These include the following:

- a viability gap fund as a capital funding support or a part-capital, part-operation-and-maintenance period support;
- use of land on a license or lease basis;
- additional land being provided for commercial exploitation by the special purpose vehicle;
- guaranteed cash-flows, typically as semi-annuity payments, which remove a part or all of the collection risk in case of annuity projects;
- take-or-pay covenants that mitigate demand risk;
- waivers of stamp duty and registration charges; and
- income tax holidays.

In addition, the central government provides

- standardized documentation for certain infrastructure sectors (request for qualification, RFP, and concession agreements);
- PPP cells staffed by competent staff to work with state governments in developing PPP projects;
- programs that disseminate knowledge and build capacities in the government and industry to undertake PPP projects;
- structured programs and funds (such as the Jawaharlal Nehru National Urban Renewal Mission) designed for projects being taken on a PPP format;
- project development studies leading to PPP projects undertaken by the India Infrastructure Project Development Fund of the Ministry of Finance and the Project Preparation Facility for Technical Assistance; and
- permitted real estate development on surplus land and/or project assets.

Buyout Right and Concession Termination

There are no buyout or termination-at-will clauses in concession agreements. Substitution rights can be exercised by the lenders, under the terms of direct lender agreements. The government can terminate an agreement if there is a default by the private party.

The principles of early termination are as follows:

- termination due to concessionaire's default—the equity investment is forfeited by the concessionaire, and
- termination due to government's default—the government pays a premium (of up to 50%) on equity investment.

In both cases of termination, lenders are protected by ensuring payment of debt due. (In the model concession agreement of the Planning Commission, in the case of concessionaire default, only 90% of debt due is covered.)

Termination may occur because of

- default by the private sector;
- default by the government; or
- force majeure, which includes acts of God, wars, indirect political events, and direct political events.

continued on next page

Box A2-1 *continued*

Defaults go through a process of notification, cure period, and termination if the default is not cured. Force majeure events lead to a suspension of obligations until a long-stop date, after which the project can be terminated.

Implementation Procedure

Preparation

Preparation begins after the feasibility studies for the project (technical, financial, environmental, and social) are completed substantially. Based on the project scope, cost, and viability, the tender documents are drafted and administrative approvals obtained. The actual process commences only when such approvals are in place.

Key planning tools adopted to plan for the tender process include:

- project feasibility report;
- project structuring options;
- decisions on role of the government agency in the process, including whether any joint development or investment is proposed;
- market study of potential bidders;
- assessment of threshold experience and financial capacity required—based on project cost and viability—part of RFP; and
- draft concession agreements and/or project development agreements.

Tender Process

Normally, a two-stage process is followed:

- request for qualification stage, where prospective bidders are qualified based on experience and financial thresholds; and
- RFP stage, where technical proposals (if any) and financial proposals are received and evaluated.

The tender process ends with a letter of award to the selected consortium, followed by the signing of the concession agreement. Once the agreements are signed, there are certain conditions (including financial closure) that have to be met within 3–6 months for the agreement to be effective.

Average time for the tender process (from the issue of tender documents to contract award and financial closing) varies widely. Normally, the target time is 6 months or less for the entire process up to signing of the concession agreement. However, actual timelines could be 1–2 years.

Contract Award and/or Execution

The award process is initiated by a letter of award that sets out the timelines for signing the agreement, payment of success fees (if any) to the government agency, and submission of performance security.

After the letter of award, the draft agreements submitted as part of the RFP are finalized and filled in. This exercise is more of a cleanup and filling in the blanks, since any substantial changes are not permitted. The contract agreements are then signed by the parties.

Negotiation is permitted only with the preferred bidder, and that is under a formal structure. A date is set for the negotiation deadline, and the government is represented either by the tender evaluation committee or by a designated officer. Negotiation is restricted to the bid parameters; other issues are not discussed.

Source: Act on Private Participation in Infrastructure. Republic of Korea.

Box A2-2 Institutional Settings for Public–Private Partnerships in Cambodia

Legal Framework

In Cambodia, the legal framework of the public–private partnership (PPP) system is included in the general concessions law. The Law on Concessions of the Kingdom of Cambodia was enacted by the National Assembly and approved by the Senate in 2007 to promote and facilitate the implementation of privately financed public projects in Cambodia. Also the laws and regulations on investment are related to PPPs, as they stipulate investment guarantees, investment incentives, and land ownership and use.

Organization of Decision Process

Council for the Development of Cambodia

The Council for the Development of Cambodia is responsible for promoting, facilitating, and registering PPP projects, in accordance with its duties under the Law on Investment and the Law on Concessions.

Functions of the council include:

- advising the Government of Cambodia on concession policy issues and making recommendations for improvement of laws and regulations applicable to concession projects;
- assisting other competent institutions in identifying and evaluating particular opportunities for privately financed infrastructure projects and in the promotion of viable projects to the investor community;
- developing, whether in the council or externally, the necessary expertise to assist contracting institutions in preparing, tendering, and monitoring complex concession projects;
- proposing model selection procedures and model project documents in order to rationalize the financing, implementation, and monitoring of concession projects;
- coordinating the capacity building and training of officers and other civil servants involved in concession projects;
- keeping a register of all concession contracts and projects for assessment and exchange of experience between contracting institutions.

In addition to the above, the council promotes PPP development by:

- seeking out PPP project opportunities in Cambodia with potential private sector investors and operators;
- maintaining and publishing a list of proposed PPP projects, either identified by line ministries or in unsolicited proposals received directly from potential investors, showing the current status of each project;
- coordinating between ministries and other government agencies and authorities, donor countries, and international organizations with respect to the PPP policy and process;
- issuing and updating registration certificates for PPP projects in accordance with its responsibilities under the Law on Investment;
- coordinating with the relevant ministries, agencies, and authorities to obtain various secondary approvals necessary for each PPP project;
- providing support and capacity building to ministries and other government agencies and authorities involved in the PPP process; and
- assisting contracting authorities in engaging external advisors for PPP transactions where necessary, including coordinating funding with the Ministry of Economy and Finance.

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Box A2-2 *continued*

Ministry of Economy and Finance
The Ministry of Economy and Finance ensures whether the balance of costs and benefits between service users, the government, and the private sector is fair and reasonable, and whether the procurement process has been undertaken transparently and consistent with the relevant laws and regulations. The ministry is responsible for assessing and approving the liabilities of the government under proposed PPP projects. Its role includes the following:

- review the impact on government finances of proposed PPP projects and provide approval-in-principle, return for amendment, or reject the proposed PPP project, if the impact on government finances is considered to be unsustainable;
- submit proposed PPP projects to the National Assembly for approval or rejection where these involve a government guarantee;
- review final contract documentation for consistency with previously granted approval-in-principle;
- provide adequate budgetary funds to allow line ministries and other agencies and authorities to fulfill their functions under the PPP process; and
- ensure that contracting authorities have sufficient funding to hire external advisors for PPP transactions, either from the annual budget or, together with council, from funding from donor countries or international organizations.

Procurement Schemes

Eligible Facility Types
Article 5 of the Law on Concessions identifies facilities in the following sectors as eligible to be procured through private investment:

- power generation, power transmission, and power distribution;
- transport facilities, including, but not limited to, roads, bridges, airports, ports, railways, and channels;
- water supply and sanitation;
- telecommunication and information technology infrastructure;
- suprastructure related to tourism projects, but not limited to tourism resorts;
- gas and oil-related infrastructures including oil and gas pipelines;
- sewerage, drainage, and dredging;
- waste management and treatment;
- hospitals and other infrastructure related to health, education, and sport sectors;
- infrastructure related to special economic zones and social housing;
- irrigation and agriculture-related infrastructure; and
- other sectors for which a specific law allows for the granting of concessions.

Procurement Methods
For PPP, a concession contract may include the following methods:

- build–operate–transfer
- build–lease–transfer
- build–transfer–operate
- build–own–operate
- build–own–operate–transfer
- build–cooperate–transfer
- expand–operate–transfer
- modernize–operate–transfer
- modernize–own–operate
- lease and operate/manage, other management arrangements, or any variant thereof or similar arrangement, including joint public–private implementation of infrastructure facilities.

continued on next page

Box A2-2 *continued*

Government Support for Land Expropriation

The Cambodian legal framework does not have provisions for some of the important government policy support measures to facilitate and stimulate private investment in infrastructure, including a set of rules for land acquisition rights, as well as the right to use national and state land free of charge.

Financial and Tax Incentives

Cambodia's PPP legal framework is still in development, with a subdecree in the process of being drafted. Many areas in terms of legal regulations and processes are yet to be covered, and hence, there exists much backlog in implementing PPP projects. So, the important government policy support measures, including various tax benefits for PPP projects, have not been provided yet.

Concession Termination

The concession period may be terminated if the following circumstances arise:

- completion delay or interruption of operation due to breach of contract by the contracting institution, and
- completion delay or interruption of operation due to force majeure.[a]

In the event that termination of the concession contract is due to a serious breach by the contracting institution or other competent institutions, the concessionaire is entitled to compensation in accordance with the terms stipulated in the concession contract, including the fair value of work performed, costs incurred, or losses sustained by the concessionaire, including, as appropriate, lost profits.

Implementation Procedure

The key stages and functions in the procurement implementation process for PPP projects fall into four major phases:

Phase 1: Plan and identify projects—determine the needs of the sector and identify projects

Phase 2: Select the investor—choose the private company to carry out the project

Phase 3: Award contract and implement project—negotiate with the preferred bidder, award the contract, and implement the project

Phase 4: Monitoring contract performance—tracking the performance of the contractor and service delivery

The line ministries with responsibilities for the infrastructure sectors include the Ministry of Industry, Mines and Energy, the Ministry of Post and Telecommunications, and the Ministry of Public Works and Transportation. They are responsible for preparing plans for infrastructure development and identifying PPP opportunities in their sectors, consistent with their responsibilities as set out in Cambodian law.

The line ministries are involved in

- the preparation and publishing of infrastructure policies defining the overall needs of the sector, priorities, and types of projects;
- identifying specific infrastructure needs and PPP opportunities consistent with those policies; and
- reviewing unsolicited bids for consistency with the sector infrastructure policy and identified needs. Where approved, they must ensure that these are subject to the correct degree of competition in accordance with the policy for unsolicited bids.

[a] Force majeure may constitute an event entitling a party to terminate the concession contract (Chapter IV, Art. 38 of the Law on Concessions).

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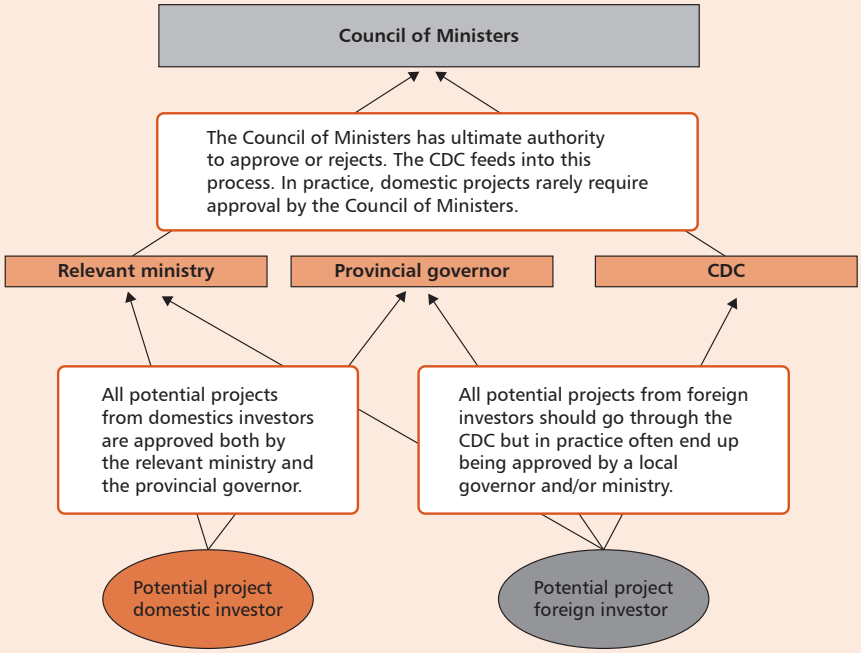
Box A2-2 *continued*

Outline of Approval Processes for Public–Private Partnership Projects in Cambodia



CDC = Council for the Development of Cambodia.
Source: Government of Cambodia. 2008. Phnom Penh.

The concessionaire is selected by the contracting institution through international or national bidding procedures or by negotiated procedures, according to the circumstances. The contracting institution obtains approval for the final terms of the concession contract and issues a notification of award to the selected candidate prior to the execution of the concession contract. The concessionaire establishes and incorporates the legal entity that will implement the concession project within 60 days of receiving the notification of award.

The concession contract should mention such matters as

- nature, scope, and standards of work to be performed and services to be provided by the concessionaire;
- any incentives to be granted to promote cost-efficiency, accelerate construction, and increase quality of operation and maintenance to the benefit of the public interest;
- any fees, tolls, rentals, or other charges to be applied by the concessionaire and, when applicable, to be approved by the regulatory agency;
- agreed risk allocation or risk sharing;
- service levels and standards required from the concessionaire in the operation and management of the infrastructure facility and consequences of noncompliance with the set service levels and standards;
- payment mechanisms; and
- required commitment and cooperation of the contracting institution and other competent institutions to support the implementation of the infrastructure project throughout the concession period.

Source: KDI. 2009. Microfinance and Public-Private Partnership Development in Cambodia. Seoul.

Box A2-3 Institutional Settings for Public–Private Partnerships in Thailand

Background of Public–Private Partnerships in Thailand

Since enactment of the Thai Public–Private Partnership Law (PPP Law), which is also known as the Act on Private Participation in State Undertaking B.E. 2535 (PPSU Act 1992), there have been problems related to the application of the law as follows:

- The lack of a clear definition of a PPP has resulted in many cases being brought to the Council of State on whether certain projects qualify under the PPP law.
- The existing law lacks concrete evaluation criteria for the assessment of PPP projects.
- There is the lack of a PPP unit to promote PPPs, assist the government in forming PPP policy, evaluate PPP projects, and coordinate with the private sector in preparing the feasibility study.
- There is the lack of a provision for government intervention in the public interest in special circumstances.

To eliminate these problems and establish efficient supervision of PPP projects, the Government of Thailand has drafted revisions to the existing PPP law to ensure that the law applies to important projects in public transport. Eventually, the government intends to submit new legislation to solve the problems with the application of the PPP law and set up an organization to supervise and monitor PPP projects.

The draft of the Thai Supervision of Large Public Investment Law would establish provisions for the supervision of investments in public services, whether by the private sector, the government, local government, other public body, state-owned enterprises, and special purpose vehicles (SPVs). In addition, the draft authorizes the government to consider a public project that is initiated solely by the private sector (unsolicited project).

The draft act provides appraisal criteria for public projects and their approval process; these apply not only to projects involving private participation but pure public sector investment as well. Moreover, to assist the government in the efficient management of private participation projects, the draft law would establish an institutional and organizational mechanism for project evaluation, implementation, and supervision.

Legal Framework

Scope of Law

The purpose of the draft of the Thai Supervision of Large Public Investment Law is to govern all of the large public projects, whether they are PPP projects or other types of public projects. Under the provision on definitions, the term "project" is divided into two categories—Project Type 1 and Project Type 2:

Project Type I means a project in which the project agency or the government agency intends to invest for the purpose of economic and social development and such investment creates the public property, or an investment in infrastructure or public services, using the government budget or other sources of funds including funding from loans.

Project Type II means (i) a project in which the project agency intends to invest for the purpose of economic and social development and such investment creates the public property, or an investment in infrastructure or public services involving private participation; and (ii) the said project is initiated by the private sector (unsolicited project).

The scope of the draft of the Thai PPP law is extended to include supervision of projects carried out solely by the public sector and for both infrastructure facilities and non-infrastructure facilities. However, to qualify, the value of the public project has to meet a certain minimum amount as prescribed by the draft law.

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Box A2-3 *continued*

Definition of PPP

Under Article 5 of the draft PPP Act, the determination of whether a project qualifies as a PPP is made based on the term "participate," which means "jointly invest with a private individual by any means whatsoever or entrust a private individual to invest solely by means of licensing or granting concession or granting rights in any manner whatsoever."

From past experiences of Thai PPP projects, there have been many problems related to the interpretation of the term "participation." Because of its ambiguous definition, many PPP projects have circumvented the application of the PPP law. To include all PPP projects into this draft law, the definition of "participation" will be specified clearly through examples of the PPP method, such as build–operate–transfer, build–transfer–operate, and build–own–operate. However, the draft has a clause that allows for the inclusion of the other forms of PPPs with the authorization of the relevant authority; the authority will issue a negative list of the projects that are not regarded as PPPs and that consequently do not fall under the PPP law. The reason behind the issuing of a negative list is to be able to include activities not specified in the list under the PPP law.

Scope of Authority

Under the draft Thai PPP law, specific committees will be established for each type of PPP project with responsibility for each stage of the PPP process. The stages are

(i) Stage 1: The Proposal of a PPP Annual Plan

A policy and supervision committee will be established, with its main power and responsibilities to include:

- propose annual and medium-term public investment plans to the cabinet;
- advise the responsible ministry on issuing regulations;
- set guidelines, regulations, conditions, and methods as specified by certain provisions;
- review, conduct appraisals, and give approvals as specified under certain provisions;
- review and approve methods of selection of private sector participants or non-bid method.

(ii) Stage 2: The Selection Process

A selection committee will be established, with its main responsibilities to include:

- review draft request for proposals, project scope, contract conditions, and other key conditions and determine bid and performance bonds;
- review and select the private sector participant; and
- negotiate the terms of the project agreement and/or concession, which have been proposed by the project agency.

(iii) Stage 3: Implementation and Supervision

A contract management committee will be established, with its main responsibilities to include:

- monitor and supervise the performance of the PPP contract;
- review proposed changes to the contract;
- report operational results, progress, problems, and methods of problem resolution; and
- decide on the time extension or expansion of the contract scope.

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Box A2-3 *continued*

Having three separate committees for policy, selection, and supervision means that the government interface with the private sector at each stage of the project process is by a different committee. This may cause delays to the work at each project stage, especially when there is a lack of coordination among the committees. To ensure the smooth continuation of the PPP process, there should be a representative from the central authority (from the project agency or the PPP unit) who knows the project well sitting in each committee. In addition, to avoid unnecessary delay in dealing with the private sector at each stage, guidelines on the steps to be taken by the private investor when there is a dispute will be provided as well as a list of which subjects or clauses in the concession agreement that can be handled by the project agencies and which have to be referred to a committee.

Establishment of a PPP Unit

The draft law provides for the establishment of a large public investment management office, which will have the followings functions:

- gather information; study, analyze, and prioritize projects; draw up an annual plan; and evaluate the project's economic, fiscal, and monetary impact for consideration of the policy and supervision committee;
- study and analyze feasibility and carry out value for money (VFM) assessment of PPP projects for policy and supervision committee consideration;
- draft guidelines, terms and conditions, and methods for project implementation under the responsibility of the policy and supervision committee for the committee's consideration;
- carry out project research and coordinate with private sector participants;
- request information from project agency and private participants for policy and supervision committee deliberation;
- collect PPP contracts for analytical purposes;
- monitor and supervise contract performance and report to policy and supervision committee; and
- carry out administrative work of the policy and supervision committee.

To enhance the efficiency of private participation in PPP projects, the large public investment management office under the draft Thai PPP law should have an initiating rather than a supportive role; the tasks of the office should be to benefit not only the public but also the private sector. In this regard, the office will act as a PPP promotion office which will provide consulting services regarding the preparation of the feasibility study by the private investor in order to shorten the PPP process and lessen the burden on the project agency, which might not have the expertise to deal with the study.

The office should also act as the coordinator for PPP projects among all related parties; i.e., the authorized agency, related government agencies and ministries, the committees, and the private sectors. Moreover, the office will be a place where the private sector can make claims on the related government agencies during the implementation process, especially when the agency does not perform its duty as set forth in the project agreement, causing adverse effects such as delay of the PPP project.

Risk Allocation and Government Assistance

Risk Allocation

There is no direct provision in Thai law regarding risk allocation; however, to protect the public sector from the private sector's performance, there is a requirement that the private investor provide a performance bond according to procedures set by the selection committee during the selection process.

The government should give advice to the project agency on the importance of risk management. In addition, guidelines on risk allocation should be provided for a better understanding of the project agency and the related authorities. In those guidelines,

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Box A2-3 *continued*

the government may indemnify itself against possible risks related to the project, assess the risk, and specify measurements to mitigate the risks, such as requiring the private investor to provide a performance bond to cover the performance risk or requiring hedging on the foreign loan to cover the exchange rate risk or interest rate risk.

In addition, to allocate risk between the government and private sector efficiently, the government should use contractual arrangements. In this regard, the government should prepare a standard concession agreement that includes a section on risk allocation and measures for reducing or managing risks.

Government Support
There is no provision in the new draft law that prescribes government support. However, in practice, some support might be provided in the concession agreement.

In the Thai context, it may be controversial to offer government support to private investors for investment in public projects. However, given that government support may be needed to attract private investors, in order to eliminate public doubt and ensure transparency, criteria for private investors to qualify for government support should be set down and announced publicly.

Unsolicited Projects
Under the draft Thai PPP law, submission of an unsolicited project by a private investor is permitted. An unsolicited project is defined as a project proposed by any person who is not a project agency and who intends to participate or invest in the investment as prescribed by the policy and supervision committee. In accordance with the draft Thai PPP law, the policy and supervision committee will be responsible for issuing guidelines on appraisals of unsolicited proposals, and the large public investment management office will be responsible for analyzing the proposal's feasibility and assessing its VFM.

Termination and Intervention
There is no provision in the draft Thai PPP law that specifies the causes of early termination of the concession or project agreement; there is also no provision authorizing the relevant committees or relevant authorities to exercise their right to terminate the concession early under special circumstance. However, in the case of any breach of the project agreement, the law allows the policy and supervision committee to inform the project agency in order to force the private investor to operate in accordance with the concession or project agreement. If, within a specified period, the private investor fails to do so, the committee will report the failure to the responsible ministry to take the steps specified in the concession or project agreement.

To protect the public interest, the draft Thai PPP law would authorize the Government of Thailand or the concerned authority to declare early termination of an agreement. However, to ensure fairness to the private investor who suffers loss due to the use of this unilateral early termination right, the private investor would be entitled to certain compensation covering items that should be taken into consideration when calculating the compensation in the case of termination for serious breach by the government. The compensation would be considered by one of the committees established in the draft law or an ad hoc committee. To eliminate disputes on the appropriate amount of compensation, the law might indicate that the determination of the committee would be final. However, this final determination is only at the administrative level; at the legal level, the parties could bring the dispute to the competent court, which is the Administrative Court in this case.

In practice, the early termination and the compensation clause would be included in the project or concession agreement. In the case of a dispute in relation to those clauses or other clauses in the agreement, the parties could choose dispute resolution alternatives, the most common being arbitration.

Source: ADB. 2007. *Technical Assistance Consultation Report: Thailand–Towards New PPP legislation.* Manila.

Box A2-4 Institutional Settings for Public–Private Partnerships in Nepal

Background of Public–Private Partnerships in Nepal

The Government of Nepal's development plans and budgets include provisions for public–private partnerships (PPP) projects. The concept of the build–own–operate–transfer (BOOT) method for infrastructure development was incorporated into Nepal's development plan documents as early as 1992, though the actual implementation has been slow due to various reasons. The Eighth Development Plan (1992–1997) envisaged that arrangements would be needed for the construction by the private sector of viable infrastructure projects, like the proposed Hetauda–Kathmandu tunnel and other road projects using the BOOT method.

The Ninth Development Plan (1997–2002) said that it was not possible to generate electricity through the efforts of the public sector alone to meet the growing demand for electricity at home and for export. Hence, the plan encouraged PPPs in hydropower development, especially to foster the confidence of the private sector in implementing hydropower projects and reduce the administrative and procedural rigidities faced by the private sector.

The Tenth Development Plan (2002–2007) adopted the policy of promoting private sector participation in the construction and maintenance of the road network with the necessary policy and legal reforms as well as improvements to the facilitative and regulatory role of the government. The plan recommended measures to attract and encourage domestic and foreign private sector investments through projects based on the build–operate–transfer (BOT) and BOOT methods. While encouraging private sector participation in such investments, the plan noted that the projects would be provided with various concessions so as to expand economic activities and promote employment at the local level. The government's procedures in this regard would be made simple, short, and transparent. The plan recommended further studies to be carried out to formulate policies and programs for effective participation by the private sector in the construction and maintenance of roads. To manage funding for road maintenance, a separate high-priority fund under the Road Fund Board would be set up.

To attract the private sector to the BOT schemes, necessary documentation related to concession agreements, guidelines, technical specifications, and feasibility studies would be arranged by a privatization cell in the Ministry of Physical Planning. According to the budget for the government's FY2005/06, investments in roadways and railways, such as the one connecting the Kathmandu Valley with the Terai in the south under a BOT, would be encouraged.

The Three-Year Interim Plan (2007–2010) mentioned that, despite the BOOT policy adopted for promoting private sector investment in the development of the physical infrastructure, private sector investment has not risen as expected. The plan gave the highest priority to the reconstruction and rehabilitation of physical infrastructure; it also said that fostering private sector involvement in the development of the physical infrastructure through the BOOT would be encouraged by making the law simpler and more practical. The plan stated that an autonomous national transport board would be established to strengthen partnership and cooperation with the private sector in order to bring about effective development and management of the transport sector.

Legal Framework

General Legislative Framework

The provisions of the Act Relating to Private Sector Investment in the Construction and Operation of the Infrastructure first came into effect in the form of an ordinance on 22 August 2003. Though it was ratified as an act on 14 December 2006, it had retroactive effect to 12 August 2006. Under the act, priority projects of the government could be implemented under a joint investment by the government and the private sector, with the condition that the government's share would not exceed 25% of the total project cost. A project coordination committee under the leadership of the vice

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Box A2-4 *continued*

chair of the National Planning Commission would be formed to coordinate and monitor the implementation of the project in addition to identifying and determining the priority of the project.

Procurement Methods

Government–private sector projects could be implemented under any of these methods: build–transfer, BOT, BOOT, build–transfer–operate, lease–operate–transfer, lease–build–operate–transfer, develop–operate–transfer, and other similar methods.

Implementation Procedure

Request for Proposals

The government could invite expressions of interest from concerned parties for the implementation, under this act, of any project exceeding NRs20 million. For the implementation of the project, public notice inviting proposals from the parties in the approved list would be made. The proposal would be selected within 60 days, on the basis of the economic strength, technical capacity, environmental study, royalty to be paid to the government, proposed fees that the consumers would have to pay, and any other specified details. Permission for the detailed feasibility study could also be given to an interested party. In specific cases, the projects could be implemented through negotiations.

Contract Award

The government would sign a letter of understanding with the selected party. The party would then have to submit the details relating to the project implementation within the time specified. The government would then enter into an agreement with the party. The terms and conditions, including other implementation details regarding the project, would have to be included in the agreement. The party would have to submit 0.5% of the total project cost as the performance bond. After the agreement, the party would be provided the letter of permission to implement the projects. The validity of the letter of permission would not exceed 30 years. During the period of the project, the project and its properties would not be nationalized.

Public–Private Partnerships for Urban Environment

There have so far not been specific cases of PPP projects under the act. However, one of the popular PPP projects in Nepal is the PPP for urban environment, which was launched in March 2002. Its development objective is to increase access of the citizens living in cities to basic services, while stimulating and strengthening participatory approaches to service delivery. Since United Nations Development Programme intervention in this area, a number of municipalities are actively pursuing PPP arrangement in service delivery. The activities of the PPP for urban environment comprise refining the environment and systems for increased community and private sector participation in basic urban services delivery, as well as building and enhancing the capacity to support the implementation of such service projects. The PPP for urban environment's activities are focused on the provision of the most essential urban services, namely, water supply and distribution, sanitation (waste water collection and removal and solid waste management) and, to a lesser extent, renewable energy and road and urban transport management. The second phase of the PPP for urban environment started in April 2004 and will run until the end of 2009.

The forest user's groups that have preserved and protected the local forests throughout the country could also be cited as a general example of a PPP. The independent power producers who sell their electricity to the Nepal Electricity Authority, which accounts for one-fourth of the total electricity supplied in Nepal through agreements with the International Energy Agency could also be cited as another example of a PPP.

Source: Based on a presentation by the Ministry of Finance of Nepal, at the Asia-Pacific Ministerial Conference on Public-Private Partnerships for Infrastructure Development in 2007.

Box A2-5 Institutional Settings for Public–Private Partnerships in Indonesia

Background of Public–Private Partnerships in Indonesia

The Asian economic crisis in 1997 reduced the Government of Indonesia's budget for infrastructure construction. This situation forced the government to look at attracting the private sector to provide infrastructure through mutual arrangements with the government. The government's goal was to create a positive impact on national and regional economic performance, as well as employment and state budget stability, through these public–private arrangements.

Presidential Decree No. 7/1998 concerning the Cooperation between Government and Business Entity in Infrastructure Development and/or Management started the private involvement era in infrastructure provision. In 2005, Presidential Regulation No. 67/2005 concerning Cooperation between Government and Business Entity on Provision of Infrastructure was intended to ensure that public–private partnership (PPP) schemes would be implemented in a more specific and standard pattern. This regulation is still under revision to create a clearer explanation and speed up the infrastructure provision process. The review period was expected to be finished by the end of 2009.

Legal Framework

In the 1980s, PPP schemes in Indonesia were initially covered by regulations for specific sectors. The first regulation, which allowed the private sector to provide infrastructure, was Law 15/1985 on Electricity, Law 13/1987 on Toll Road, and Government Regulation 10/1989 on Electricity. These three regulations were administered only in specific sectors and did not regulate infrastructure as a whole. The next sector-specific regulations were Presidential Decree 37/1992 on Private Electricity and Presidential Decree 55/1993 on Land Acquisition to regulate infrastructure provision for toll roads, electricity, water, and ports. The decrees made PPP projects in these sectors easier to implement. Significant changes in infrastructure provision occurred in 1998 when Presidential Decree 7/1998 was declared. This decree was the first cross-sector infrastructure provision regulation, and it initiated a new chapter for PPP schemes in Indonesia.

The Asian financial crisis decreased the government budget for infrastructure projects and resulted in a significant lack of infrastructure in Indonesia, which affected the country's international competitiveness. Since the crisis, Indonesia's economy has become more integrated into the world economy. Investors have become more sensitive to internal condition such as political and infrastructure availability. The financial crisis was not the only challenge for the infrastructure sectors in Indonesia. The reform era following the crisis created major differences in infrastructure provision because local governments also had to take responsibility for some infrastructure provision and management. These significant changes and challenges required systematic management of PPPs in the form of regulation and institutional framework.

President Susilo Bambang Yudhoyono declared Presidential Regulation No. 67/2005 concerning Cooperation between Government and Business Entity on Provision of Infrastructure, which defined the cross-sector regulatory framework for the private provision of infrastructure. Two modes of cooperation with the private sector are mentioned in this regulation: PPP scheme and business license. This regulation is still under revision.

Several government policies followed the aforementioned regulations. Sector laws were reformed so that they integrated better with sector policies. The Indonesian Infrastructure Fund and Guarantee Fund were also established.

Land provision has been a problem for Indonesia infrastructure projects for a long time. Government Regulation No. 36/2005 was designed to solve land provision problems. The National Land Bureau of Indonesia is preparing a draft of the Law on Pengadaan Tanah Bagi Pembangunan untuk Kepentingan Umum (Land Provision for Public Interest) to address this problem.

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Box A2-5 *continued*

The regulation that controls PPPs in Indonesia is based on Presidential Regulation No. 67/2005 concerning Cooperation between Government and Business Entity on Provision of Infrastructure. This regulation administers several infrastructure sectors that are eligible for PPP projects; each sector administers PPP projects according to the sector laws and regulations listed in the Regulations on Infrastructure Sectors (see box next page). The sectors that are covered by Presidential Regulation No. 67/2005 are

- transport,
- roads,
- irrigation,
- drinking water,
- waste,
- telecommunication,
- power, and
- oil and gas.

Sector laws ensure that infrastructure policies are regulated by specific government institutions and run through an accountable and measurable system.

Organization of Decision Process

Committee on Policy for the Acceleration of Infrastructure Provision (Komite Kebijakan Percepatan Penyediaan Infrastruktur)

Under Presidential Regulation 42/2005, coordination of PPP policy in Indonesia is organized by the Committee on Policy for the Acceleration of Infrastructure Provision, which is headed by the Coordinating Ministry for Economic Affairs. This committee is a mutual concern between the Coordinating Ministry for Economic Affairs and the National Development Planning Agency (Bappenas). The minister and the head of Bappenas chair the committee, which coordinates the implementation of infrastructure policy with infrastructure sector ministries, the Ministry of State-owned Enterprise, the Ministry of Home Affairs, and the Ministry of Finance as fiscal authority (see figure on p. 193 for committee structure). The committee established a secretariat or PPP center unit, located within Bappenas, which is responsible for

- policy analysis, development, planning, and coordination;
- monitoring and quality control;
- identifying projects requiring government support; and
- resolving cross-sector issues.

PT. Sarana Multi Infrastruktu

PT. Sarana Multi Infrastruktu was launched in February 2009 to implement infrastructure fund policy. PT. Sarana Multi Infrastruktu is intended to be a catalyst and/or facilitator to speed up infrastructure provision in Indonesia by providing loans to infrastructure project.

PPP Units

Technically, PPP units have been implemented in three ministries—Bappenas (implemented by PKPS), the Coordinating Ministry for Economic Affairs (implemented by the deputy for infrastructure and regional development), and the Ministry of Finance (implemented by RMU). These suborganizations are acting as PPP units until the "real" PPP units are established within Bappenas, the Coordinating Ministry for Economic Affairs, other concerned ministries, and the Coordinating Investment Board. Local governments and/or state-owned enterprises will act as the contracting agency for PPP projects.

The contracting role can be delegated to special bodies that are under particular infrastructure sector ministries. Examples are BPJT for the toll road sector and Badan Pendukung Pengembangan Sistem Penyediaan Air Minum (BPPSPAM) for the water sector in the Ministry of Public Works (MPW). The Ministry of Transportation and the

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Box A2-5 *continued*

Regulations on Infrastructure Sectors

Completed	In Progress
Law No. 7/2004 on Water Resources	GR Draft on Operational of Information and Electronic Transaction
Law No. 38/2004 on Road and Toll Road	GR Draft on Lawful Interception
Law No. 23/2007 on Railways	GR Draft on Lawful Interception
Law No. 30/2007 on Energy	GR Draft on Strategic Data Processing
Law No. 11/2008 on Information and Electronic Transaction	GR Draft on Swam
Law No. 17/2008 on Sea Transportation	GR Draft on River
Law No. 18/2008 on Garbage Management	GR Draft on Basin and Dam
Law No. 1/2009 on Aviation	GR Draft on Railways Traffic
Law No. 4/2009 on Mineral and Coal	GR Draft on Navigation
Law No. 22/2009 on Road Traffic	GR Draft on Water Transportation
Law No. 30/2009 on Electricity	
GR No. 15/2005 on Toll Road	
GR No. 28/2005 on Non-Tax Government Revenue	
GR No. 16/2005 on Drinking Water Provision System Development	
GR No. 3/2005 on Electricity Provision and Utilization	
GR No.1/2008 on Government Investment	
GR No.38/2008 on Asset Management	
GR No. 42/2008 on Natural Resources Management	
GR No. 43/2008 on Ground Water	
GR No. 75/ 2008 on Capital Injection of Government of Indonesia for Establishment of Infrastructure Financing Corporation	
GR No. 35/2009 on Capital Engagement of Government of Indonesia for Establishment of Infrastructure Guarantee Corporation	
GR No. 56/2009 on Operational of Railways Infrastructure	
GR No. 61/2009 on Seaport	

Ministry of Energy and Mineral Resources also have this special function, which is implemented by the secretary general in both ministries. In the future, Indonesia will involve state-owned enterprises, local governments, and the Coordinating Investment Board for the PPP Network and also plans to establish a PPP unit in the Ministry of Communication and Information (MCI). PPP nodes are established in the line ministries that have a strong correlation with infrastructure sectors (such as the Ministry of Energy and Mineral Resources, the Ministry of Public Work, and the Ministry of Transportation).

Presidential Regulation No. 67/2005 states that ministers, institutional heads, and local government heads who are responsible for a particular infrastructure sector can assign the contracting agency. The contracting role refers to the procurement of the PPP concessionaire or business license. The contracting agencies are designated by the Committee on Policy

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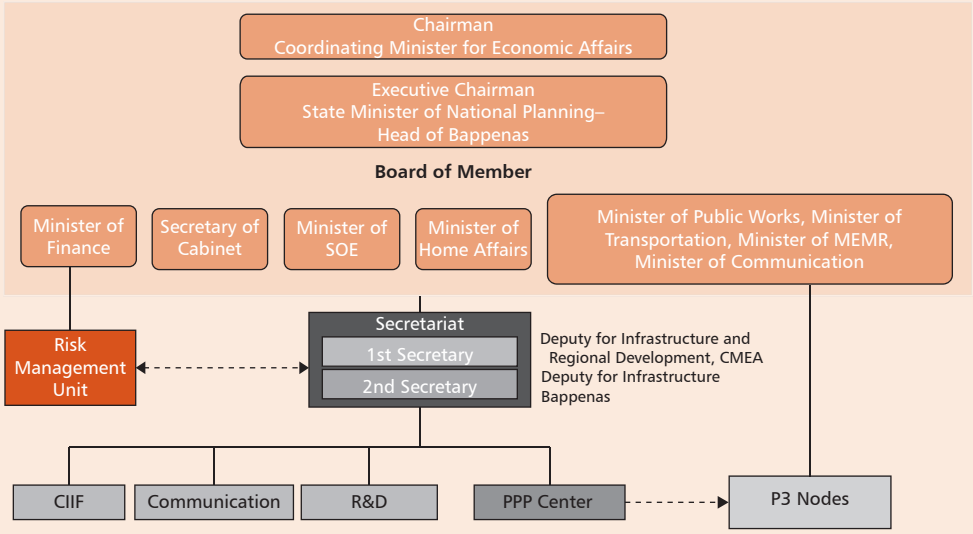
Box A2-5 *continued*

Figure A2-1: Structure of the Committee on Policy for the Acceleration of Infrastructure Provision



CMEA = Coordinating Ministry for Economic Affairs, CIIF = Consolidated Indonesia Infrastructure Forum, MEMR = Ministry of Energy and Mineral Resources, PPP = public–private partnership, SOE = state-owned enterprises.

for the Acceleration of Infrastructure Provision to the sector ministries, state-owned enterprises, and local governments (PPP nodes). The main roles of PPP nodes are project identification, preparation, and monitoring and quality control, which include screening, due diligence, bid documents, and transaction and post-transaction monitoring.

Government Support

The government has addressed issues in infrastructure provision through issuing several policies.

Project Development Facility

Initially, this facility was implemented to solve problems that occurred in the project preparation step. But there are still several issues with this facility that need to be addressed. These include

- criteria for projects that can be prepared is unclear,
- unpreparedness for distributing risk and government support,
- lack of commitment and no incentive and/or disincentive, and
- lack of plan for programs and/or funding sustainability.

Guarantee Fund

By establishing the PT. Penjaminan Infrastruktur Indonesia (guarantee fund) in December 2009, the Government of Indonesia tried to guarantee the infrastructure projects from government policy risk to increase the projects' creditworthiness and to promote particular infrastructure projects so they would be more attractive to the private sector. There are a number of problems with this fund:

- The confirmation process for claiming government support is too long.
- There is a lack of funding for the investment tender team so there is no incentive to make the process faster.

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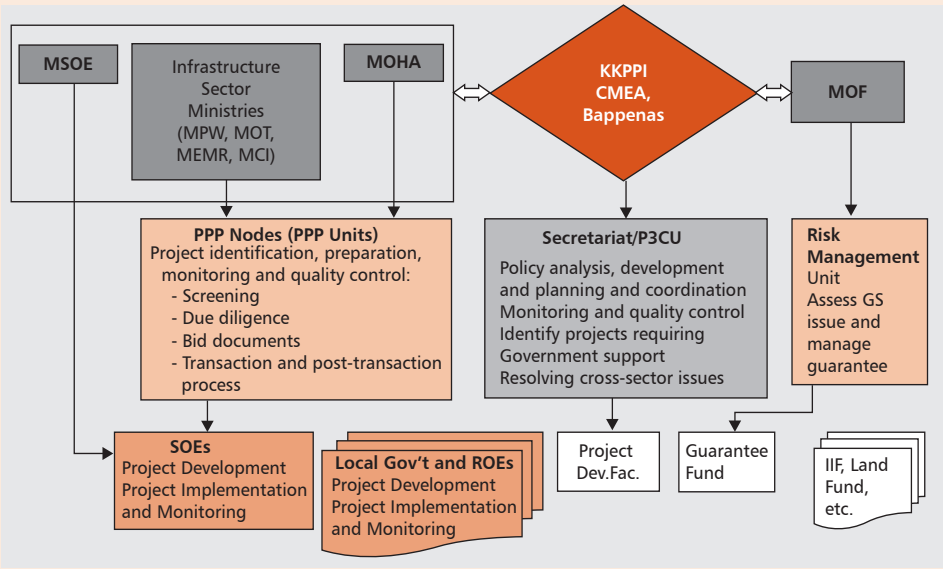
Box A2-5 *continued*

Figure A2-2: Indonesia Public–Private Partnership Institutional Framework



CMEA = Coordinating Ministry for Economic Affairs, KKPPI = National Committee for the Acceleration of Infrastructure Provision, Govt = government, GS = Government Subsidy, IIF = Indonesia Infrastructure Finance, MCI = Ministry of Communication and Information, MEMR = Ministry of Energy and Mineral Resources, MOHA = Ministry of Home Affairs, MOF = Ministry of Finance, MOT = Ministry of Transportation, MSOE = Ministry of State-Owned Enterprises, ROEs = Regional-Owned Enterprises, SOEs = State-Owned Enterprises.

- Government Regulation No. 35/2009 has been issued, so there is no staff or mechanism for the fund.

Land Revolving Fund and Land Capping

Land provision is a crucial issue that must be solved immediately. The government has proposed a Land Revolving Fund and land capping as the solution for the land problem in infrastructure development. But there are several problems with these land policies:

- Land should be available before the tender process and funded by the government.
- The Land Revolving Fund can only be used once there is an investor.
- Land capping is not working very well due to investor equity constraints.
- There is no incentive for local governments in managing infrastructure.

Infrastructure Fund

To tackle the problem of obtaining long-term funding for infrastructure projects, PT. Sarana Multi Infrastruktu in February 2009 issued Government Regulation No. 66/2007 as amended by Government Regulation No. 75/2008 concerning the Amendment of Government Regulation No. 66/2007 concerning Equity Investment of the Government of the Republic of Indonesia for the Establishment of a Limited Company in the Infrastructure Financing. The regulation established the Indonesia Infrastructure Fund Facility, which will provide funding arranged by PT. Sarana Multi Infrastruktu and international donor institutions, such as the Asian Development Bank, the International Finance Corporation, and Deutsche Investitions- und Entwicklungsgesellschaft mbH (DEG). Issues with this regulation include:

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Box A2-5 *continued*

- The funding mechanism has not been tested yet, and the Indonesia Infrastructure Fund Facility is still in the establishment phase.
- PT. Sarana Multi Infrastruktur has been established, and Rp1 trillion in government funding has been provided.
- The financial instruments provided by the fund are limited (this is determined in the negotiation phase with source agency).
- There is a lack of project quality that can be used as a role model.

Implementation Procedure

The government implements PPP projects and evaluates PPP implementation. Generally, the projects have problems in the following phases:

Phase 1: Project Preparation
The problems occurring in this step are usually the result of poor preparation on the part of the private sector. Several problems that arise in this phase are as follows:

- The project's quality and package are not financially attractive for financial institutions (unbankable).
- The pre-feasibility studies are not complete—there is a lack of evaluation of the commercial, economy, legal, contract form, risks, and government support aspects.
- There is a lack of understanding of the commercial aspects (legal and financial).

Phase 2: Project Tender
Problems occurring in this phase are often the result of the characteristics of specific projects. The problems in this phase are as follows:

- The perceived risk is high. Infrastructure project have several special characteristics, such as they are expensive, subject to political and governmental policy changes, require a long time for payback, have a low return on investment, etc.
- There is a lack of understanding of commercial aspects and transactions.
- The project tender is drafted hastily without approval regarding government support. This makes infrastructure projects less attractive for the private sector.
- There is no coordination in managing the risk allocation. There should be a clear description about the risk allocation between the government and the private sector.
- Document tender and risk allocation are unclear and/or incomplete.

Phase 3: Land Acquisition
This phase requires a sophisticated solution for infrastructure projects. A specific regulation on land provision for public interest is still being prepared by the National Land Bureau. Several problems in this phase are as follows:

- All land acquisition organization members are from the local government.
- Land acquisition organization members are constrained on strategy planning and deciding compensation value.
- Members lack the courage to revoke the land rights.
- There is a risk that the land price will rise. When the government announces a plan to establish an infrastructure project in a particular area (land), the land owners often increase their land price.
- The land acquisition cost for the investor is a constraint. The land acquisition fund is counted as a sunk cost for the investor. If the land acquisition cost is too high, then the investor will be less attracted to the investment.

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Box A2-5 *continued*

Phase 4: Project Construction
After the land has been acquired, the construction phase begins. Some issues raised in this phase are as follows:

- There is a need for funding in large amounts and over the longer term. Providing long-term funding is difficult unless the lending rate is acceptable to the banks.
- There is a mismatch between the project (tenor, exchange rate, and risk-return) and the funding resources (domestic and international).
- There are only a few private sector investors that have enough equity to invest in large infrastructure projects.

Phase 5: Operation
The final step of an infrastructure project is the operational phase. This phase suffers from the same problems as the construction phase.

Source: Based on internal data from the Coordinating Ministry for Economic Affairs of the Republic of Indonesia.

About the Authors

Jay-Hyung Kim

Jay-Hyung Kim was appointed managing director of the Public and Private Infrastructure Investment Management Center (PIMAC) at the Korea Development Institute (KDI) in April 2006. According to the National Finance Law and the Public Private Partnership Law, the center is mandated to be responsible for managing and supervising efficient and transparent public and private infrastructure investment projects. It also provides professional support to the Government of the Republic of Korea through efficient and transparent public and private infrastructure investment management. Jay-Hyung Kim has been a fellow at the KDI since 1994, conducting research on regional development, infrastructure development, public finance, and urban planning. He has helped the Ministry of Strategy and Finance and other ministries formulate budget plans, social and economic development plans, and other policies. He has also served as a director of the Public Investment Management Center and as a director of the Department of Public Private Partnership (PPP) Program.

Jay-Hyung Kim currently serves as an advisor to the Board of Audit and Inspection and to the Ministry of Education, Science and Technology. He has also been a serving member of advisory committees to the Ministry of Strategy and Finance; the Ministry of Land, Transport and Maritime Affairs; and the Ministry of Defense.

Jay-Hyung Kim's planning and public finance experience also includes serving as a senior evaluation officer and senior economist at the World Bank from 2003 to 2005. His responsibilities included evaluations of World Bank projects in many countries, and sector and thematic evaluation of urban development projects. He has worked for several countries including Indonesia, Kazakhstan, Mongolia, Thailand, and Viet Nam. He is currently a member of the board and the team of specialists on public–private partnerships at the United Nations Economic Commission for Europe.

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Seung-yeon Lee has worked at the PIMAC at KDI as an infrastructure and public–private partnership (PPP) specialist since July 2008. She has been involved in diverse research and policy development projects related to PPPs and public investment, and has conducted Value for Money tests, preliminary feasibility studies, and reassessment of feasibility studies on infrastructure projects. She also managed PIMAC's major international cooperative activities and capacity building programs for foreign public officers.

Prior to working at PIMAC, Seung-yeon Lee worked for the Ministry of Strategy and Finance from May 2006 to May 2008. As a deputy director of the PPP Policy Division, her responsibilities included developing PPP policies and regulations, establishing PPP investment plans, monitoring project implementation, and administering the Korea Infrastructure Credit Guarantee Fund. She also promoted bilateral and multilateral cooperation with foreign governments and international organizations.

Seung-yeon Lee is a Korean national, and holds a bachelor of arts in Western history from Seoul National University, and Master of International Affairs from Columbia University's School of International and Public Affairs.

About the Korea Development Institute

KDI, established in 1971, is an independent policy-oriented research organization and a leading think-tank of the Republic of Korea. It has contributed to policy making and institutional reform by conducting research in many areas, including macroeconomics, finance, fiscal policy, social security, labor, industry, trade, economic law, and the economy. It has developed into a comprehensive policy institute of international recognition by taking up diverse roles and functions.

The Public and Private Infrastructure Investment Management Center, the affiliated body of KDI, started its operations in 1999, serving as a gatekeeping agency of the Government of the Republic of Korea, then to procuring economic and social infrastructure, and enhancing efficiency and transparency of public and private infrastructure investments.

About the Asian Development Bank

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